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Worldwide Report

ENVIRONMENTAL QUALITY

No. 389

DRUG QUALITY INSPECTED 3

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7 March 1983

WORLDWIDE REPORT ENVIRONMENTAL QUALITY

No. 389

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WORLD HERITAGE LISTING NO BAR TO FRANKLIN DAM, SAYS GRAY

Tasmanian Premier's Determination

Canberra THE AUSTRALIAN in English 16 Dec 82 p 1

[Article by Peter Dwyer and Tony Harrison]

[Excerpt]

THE Tasmanian Government yesterday claimed the right to mine, forest and dam the World Heritage area of south-west Tasmania.

The Premier, Mr Gray, said it was the Government's intention to reserve the right to pursue development "in the economic interests of the State".

He said the listing of south-west Tasmania by the World Heritage Commission in Paris on Tuesday would have no effect on his Government's determination to continue with the Franklin dam.

As the number of protesting conservationists arrested for blockading work on the dam climbed to 85 yesterday, Mr

Gray told Parliament the World Heritage Commission had acknowledged in its decision that the dam construction would continue.

Heckled

He said hydro-electric power development in the area had been the subject of exhaustive debate for several years and the Tasmanian people had made their wishes perfectly clear through a referendum and general election.

His Government was determined to enact those wishes and build the dam.

The Tasmanian Government would now work with the Federal Government to develop plans for the management and use of the south-west region.

Threat to Heritage Listing

Canberra THE AUSTRALIAN in English 16 Dec 82 p 1

[Text]

SOUTH-west Tasmania could be dropped from the United Nations World Heritage list within the next couple of years because of irreversible damage caused by work on the Franklin dam.

The World Heritage convention includes a clause under which listed properties may be deleted "where the property has deteriorated to the extent

that it has lost those characteristics that determined its inclusion".

The Australian Conservation Foundation, the Labor Party and the Australian Democrats expressed concern yesterday that this would be the fate of the south-west wilderness, which was approved for listing by the World Heritage Com-

mittee in Paris on Tuesday night.

Labor representatives said it might be appropriate to remove the region from the list within 12 or 18 months, if dam work proceeded.

The convention provides a legal administrative and financial framework within

which its signatories, including Australia, can co-operate for international protection of a listed area.

Mr Gerard Bolla, a Swiss jurist, economist and former director of UNESCO's cultural heritage division, wrote in the UNESCO Courier: "Inclusion on the list has serious implications for national and local authorities ... (and) entries may in fact be removed (though) ... it is hard to imagine any public body failing to do its utmost to prevent the loss, possibly irremedial, of property which it has undertaken to preserve."

The Leader of the Government in the Senate, Senator Sir John Carrick, said yesterday the committee had accepted listing of south-west Tasmania knowing a dam was proposed for the area and all Australians should be "delighted" this listing had been achieved.

The acting Prime Minister, Mr Anthony, said the Commonwealth was opposed to the dam development but did not believe it had the right to intervene.

Federal Government Position

Melbourne THE AGE in English 16 Dec 82 p 1

[Article by Simon Balderstone]

[Excerpt] Canberra--The Federal Government is preparing for more talks with Tasmania on the possibility of saving the South-West Tasmanian heritage area from the Gordon-below-Franklin dam.

The Federal Government, faced with increasing backbench dissidence and the strong line taken by the UNESCO World Heritage Committee, refused yesterday to concede that the issue was over and that the dam would necessarily go ahead.

The acting Prime Minister, Mr Anthony, who met more than 20 backbenchers on Tuesday night to discuss the issue, said yesterday the Federal Government did not condone the building of the dam.

The head of the Australian delegation to the World Heritage meeting in Paris, Professor Ralph Slatyer, chairman of the World Heritage Committee, said from Paris that the committee hoped that in the period before the dam was built "there might be some rethinking of the whole programme."

He said the committee, which listed the wilderness area on Tuesday without qualification, was hoping "that maybe some other procedure might be devised for satisfying the electricity requirements for the Tasmanian people."

Editorial Criticism of Government

Melbourne THE AGE in English 16 Dec 82 p 13

[Editorial: "Tasmania's World Heritage"]

[Text] The die is now cast. The imprimatur of the World Heritage Committee on south-west Tasmania, and its open concern that this heritage is endangered by the proposed Gordon-below-Franklin dam, make quite clear what is at

stake where the little rafts are now landing on the river banks. The committee has accepted that south-west Tasmania, like the Great Barrier Reef, is of such outstanding beauty and grandeur that it should be considered part of the heritage of all mankind — part of the world heritage. Australia, in the view of other nations, is the trustee of this heritage, responsible for preserving it for the future in its unspoiled state. Under the terms of the World Heritage Convention signed by Australia and endorsed by all political parties, that responsibility falls squarely on Australia's national Government.

The World Heritage Committee also made it clear that the proposed dam is a serious threat to the preservation of this heritage. Mark its words: "The committee is seriously concerned at the likely effect of the dam on these natural and cultural characteristics which make the property of outstanding universal value in particular, and considers that flooding of parts of the river valleys would destroy a number of cultural and natural features of great significance . . . We recommend to the Australian society to take every possible measure to protect the integrity of the site. The committee suggests that the Australian authorities should ask the committee to place the property on the list of World Heritage In Danger until the question of dams construction is resolved."

The onus is plainly on the Federal Government to take "every possible measure" to prevent this destruction and ensure that the valleys are preserved. Of course a similar responsibility exists already under the Australian Heritage Commission Act. There is no question that it has the power to exercise its responsibility. It may refuse to give the HEC permission to borrow overseas for the dam. It may refuse to give the HEC permission to import equipment and machinery for the scheme. It may cut back the huge subsidies Tasmania receives from other States until the Gray Government agrees not to destroy the world's heritage. Most directly of all, constitutional experts now seem to agree that it may legislate to forbid the building of the dam.

It is no answer for Mr Anthony to wring his hands and say the Commonwealth cannot intervene because "the dam is absolutely essential". The whole point of the issue is that these beautiful valleys are to be drowned for a dam that is not essential. As we have pointed out repeatedly, the choice is one between cheap electricity with huge environmental costs and reasonably cheap electricity with the environment preserved. Every other State has coal-fired power stations; Tasmania has the coal, and a two-stage 400-megawatt station would be quite economic. Pending detailed investigations, it would seem to be economic for the Tasmanians to build a submarine cable across Bass Strait and buy power from Loy Yang, or swap us peak hydro power for our round-the-clock coal-fired electricity. Smaller hydro schemes can be built on other Tasmanian rivers of less environmental importance, and there is great scope for savings through energy conservation.

The responsibilities of the Federal Government are clear. One may sympathise with its dilemma in having to take on its own Tasmanian branch. But politics is a tough game, and it cannot chicken out of its duty just because the offender is its own kin. What it gains in preserving internal harmony, it will certainly lose in the ballot boxes throughout Australia. The World Heritage Committee has lit up the way the Federal Government must now go.

CSO: 5000/7538

FEDERAL GROUP URGES REFORM ON USE OF CHEMICALS

Brisbane THE COURIER-MAIL in English 10 Dec 82 p 33

[Text]

CANBERRA.— Wide-ranging reforms are needed to improve the poor overall control of hazardous chemicals in Australia, a federal parliamentary committee has found.

Thirty-five recommendations are contained in the second report by the House of Representatives standing committee on environment and conservation on hazardous chemicals, tabled in Parliament yesterday.

Its chairman, former Health Minister, Mr MacKellar, said the committee found to be unacceptable the "fragmentation of controls between state and Commonwealth jurisdictions and the resultant lack of uniformity".

Following its inquiry into the manufacture, transport, storage, use and disposal of chemicals, the committee recommended:

- A co-ordinating council for chemical safety be established to ensure the "comprehensiveness and coordination" of assessment and regulatory processes for hazardous chemicals.

- Before establishment of the council, a task force should investigate the added coverage needed by representative bodies such as the Australian Agricultural Council, the Australian Drug Evaluation Committee and the Australian Environment Council, "to ensure the comprehensive notification and assessment of all potentially hazardous chemicals."

- The Trade Practices Act should be amended as soon as possible to require that product safety sheets are supplied with all potentially hazardous chemicals sold in Australia.

- The Federal Attorney-General should legislate "as a matter of urgency" to require commercial containers of potentially hazardous chemicals to be labelled clearly.

- Manufacturers, importers and suppliers should be required to disclose the presence of hazardous ingredients in products and the full nature of the hazards.

- A national emergency chemical information service, available 24 hours a day, should be established.

- If state governments failed to incorporate the Australian code for the transport of dangerous goods by road into legislation by 1985, "the Commonwealth should legislate to enforce the code to the fullest extent of its power".

CSO: 5000/7537

NSW GOVERNMENT TO GET STRICTER WITH, BUT NOT BAN, 2,4,5-T

Sydney THE SYDNEY MORNING HERALD in English 16 Dec 82 p 3

[Article by Richard Eckersley]

[Text]

The State Government is to tighten controls on the use of the herbicide 2,4,5-T, including a ban on its use by home gardeners, after an inquiry which found that it has been carelessly used in NSW.

But the Government committee which conducted the inquiry found no justification for banning 2,4,5-T.

The herbicide is useful and poses little danger to humans, animals and the environment if used as directed, the committee says in its report.

The Minister for Agriculture, Mr Hallam, will release the report and announce the Government's response to it today.

Cabinet, in substantially adopting the committee's recommendations, has decided to:

- Prevent the use of 2,4,5-T in home gardens by restricting sales in supermarkets nurseries and garden and hardware stores.
- Ban the aerial spraying of 2,4,5-T and its use within 50 metres of any house, public building, dam, river or water channel — unless a special permit is obtained. Pilots will also need a special licence to use pesticides.

- Prohibit use of the herbicide on blackberries bearing ripe fruit (about half the 2,4,5-T used in NSW is used on blackberries).

- Reduce the legal limit for the highly toxic contaminant TCDD from 0.1 parts per million to 0.01 ppm (virtually all 2,4,5-T sold in Australia already meets this requirement, according to Government pesticide experts).

- Ban the more volatile formulations of the herbicide to reduce spray drift.

- Set up an advisory committee on pesticides to review and monitor their use, and tighten requirements on protective clothing, records of sales and use, training, medical examinations for government and local government workers exposed to the herbicide, and equipment.

The committee, chaired by a former deputy chief stipendiary magistrate, Mr Walter Lewer, notes in its report the disquiet about 2, 4, 5-T in the community — "attributable in no small part to extravagant and sensational journalism, but also, in part, to controversy in the scientific literature."

The herbicide is no more toxic than many substances in everyday use and much less toxic than many commonly used pesticides, it says.

"The evidence available to the inquiry does not support claims that 2, 4, 5-T has caused spontaneous abortions, stillbirths or birth defects in humans."

While evidence suggests there may be a relationship between exposure to the contaminant TCDD and later development of soft-tissue cancers, the cancer risk to users in NSW is considered to be "at most very small and may well be zero," the committee says.

But the committee expresses concern about the misuse and careless use of 2, 4, 5-T. "From the submissions it is clear that a great many users of the preparation regard it as completely harmless and treat it as such."

It recommends "legislative intervention" to prevent the use of defective and inadequate equipment, and emphasises the need for adequate protective clothing and washing facilities.

About 50 tonnes of 2, 4, 5-T has been used in NSW this year (83 tonnes were used in 1979), mainly to control woody noxious weeds and native regrowth on agricultural land, forestry land, recreation areas, roadsides, and railway and electricity networks.

It is used in small quantities in home gardens to control privet, lantana and other woody weeds.

GRAZIERS LET DROUGHT-PLAGUED CATTLE INTO NATIONAL PARK

Melbourne THE AGE in English 15 Dec 82 p 5

[Article by Simon Balderstone]

[Text]

CANBERRA. — Another environmental struggle involving wilderness and the law has broken out, with drought-stricken graziers pushing thousands of head of cattle into Kosciusko National Park.

This time the law is trying to stop wilderness being damaged, and National Parks and Wildlife Service officers are to begin a huge round-up of 2500 cattle on Saturday.

Local graziers have put the cattle into the park to graze despite the officials warnings that such action is illegal. Parks officers will impound the animals on Saturday, and charge release, cartage, feed and other costs to farmers. If the cattle are not claimed they will be sold.

Grazing in the park has been banned for many years, after cloven-hooved animals began to cause serious erosion in the delicate alpine environment, which has an extremely short growing period and can take centuries to recover.

The cattle also spread weeds and compete with native fauna for depleted stocks of food and water. "The drought doesn't end at the fence line of the park," the regional director of the parks service, Mr Bruce Leaver, said yesterday.

A farmers' spokesman, Mr Tom Barry, said yesterday that farmers would leave their stock in the park after having arranged with transporters and stock agents not to take out or sell the animals.

"We can shift them in quicker than they can shift them out," said Mr Barry. But Mr Leaver said transport was already arranged, and farmers would have to pay for any costs.

Graziers say the only good feed within "a thousand miles" is in the park, and if stock is not allowed in it will have to be shot or given away. A release fee of \$30 per head for cattle, and about \$4 for sheep will have to be paid if farmers want to redeem their stock from the Tumut pound.

The farmers say they only want to go back into what has been traditional grazing territory, and not the delicate summit regions of the park. But Mr Leaver said yesterday that cattle were already in the Jagungal wilderness area of the park, which was very high altitude country. The high altitude bogs were the parts of the park most affected by drought, he said. "There is virtually no feed in the forests, so the stock will go to the wildflower alpine meadows," he said.

Cattlemen claim that serious erosion has not been caused by cattle, and cite the fact that erosion repair is still taking place despite the long absence of cattle from the park.

But parks officers say this merely shows that the damage takes an extremely long time to repair, and that the environment may take thousands of years to recover in some parts of the park.

Mr Leaver said a new plan of management for the park was completed in May after four years of public discussion, during which time no grazier had argued that cattle be allowed into the park.

"Now they start the issue at the worst possible time for the park, which is under great drought stress," he said.

CSO: 5000/7537

UNIDENTIFIED SLICK THREATENS QUEENSLAND COASTAL AREAS

Brisbane THE COURIER-MAIL in English 15 Dec 82 p 2

[Article by Bill Ord]

[Text]

AN evil-looking sea-borne substance of unknown origin is advancing on the Queensland coast between Cape Moreton and the Gold Coast.

The ochre-colored slick, in grainy, veiny bands up to 100 metres wide and 10 km long and covering an area 50 km long and 10 km wide, could be oil or what is called "reef scum".

If it is oil, it could be an ecological disaster — not to mention what it would do to the Christmas-holiday plans of thousands of swimmers, sunbathers, surfers and anglers.

If it is just organic scum, well, it might stink on the beaches for a few days.

Late yesterday, it seemed that the mystery substance was most likely to be micro-organic detritus from the Great Barrier Reef, driven south by the recent storms.

But no one except the Queensland Marine Board chairman, Captain Phil Gibson, would offer odds on this probability.

And anyway, he said, as the occurrence was on the ocean side of Moreton Bay, it wasn't his or the state's responsibility.

This belonged to the Federal Transport Department whose senior ocean-affairs official in the Queensland area, Mr Phil Horscroft, said yesterday afternoon he had not heard about the slick — notwithstanding the fact that it had been reported to the Civil Aviation authorities by Archerfield's Hempel Flying School instructor Mr Malcolm Beard early yesterday.

Assured that the unwholesome-looking gunk had also been observed and photographed from the air by a Courier-Mail reporter-photographer team early yesterday afternoon, Mr Horscroft said he thought that perhaps he would order some samples to be taken in order to determine what it was.

Well, he was asked, if the gunk did turn out to be oil, what would he do about it?

"Ah," he said vaguely, "We have an oil plan. We have stocks of dispersants which would be sprayed on any heavy oil slick."

CSO: 5000/7537

PROTESTERS WHO STOPPED PAPER MILL FOCUS ON COAL PORT PLANS

Brisbane THE COURIER-MAIL in English 16 Dec 82 p 30

[Text]

A GROUP of Bribie Island and Sunshine Coast residents, who united successfully to fight the establishment of a paper mill in the area earlier this year, are preparing to battle the State Government over the proposed Bribie Island coal port.

Groups Against Pulp, which includes representatives from more than 30 civic groups from Bribie Island to Maroochydhore, will meet within a week to plan a major campaign against the port proposal.

This follows a State Government committee recommendation earlier this week that Bribie Island's North Banks be developed as a port for coal export.

The port has been proposed by Marathon Petroleum Aust. Ltd as the outlet for coal deposits the company wants to develop at Macalister, near Dalby, on the Darling Downs.

The group chairman, Dr John Shuttleworth, of Beerburrum, said the committee report in favor of a coal port on Bribie Island, was "a direct contradiction" of a land usage report issued by the Co-ordinator General's Department in April.

"The report made it clear that Bribie Island and the Pumicestone Passage were to be made into a protected area for recreational use," he said.

"It recommended the establishment of national and environmental parks in the area.

"I wish they'd make up their minds. Cabinet is like a circus, where you watch clowns running around not knowing what they are doing."

Dr Shuttleworth said he believed the port proposal would develop into a political issue.

"The state seat held by Mr Des Frawley (NP, Caboolture) in that area is marginal," he said. "There are enough people there to make things very hot for the Government."

Dr Shuttleworth said he was confident community pressure against the port proposal would save the day.

"We won the battle against the pulp mill," he said. "I don't see why we won't win this one."

However, he admitted GAP faced a harder battle over the port proposal. "There is a lot more money involved this time," he said.

"One thing which might save Bribie Island is that by the time the mine is opened, coal will have become obsolete as a fuel source."

CSO: 5000/7537

BRIEFS

ISLANDS ON HERITAGE LIST--The Lord Howe Island group has been included in the UNESCO World Heritage List. The Minister for Home Affairs and Environment, Mr McVeigh, announced yesterday the group of islands was considered by the World Heritage Council at its meeting in Paris. Mr McVeigh said the area now inscribed included Lord Howe Island itself, Ball Pyramid, adjacent islets to the south, and the Admiralty Islands to the north. Australia was now represented by five sites in the World Heritage List. The other sites listed are Kakadu National Park in the Northern Territory, the Willandra Lakes region in western NSW and the Great Barrier Reef. The purpose of the list was to gain international recognition and protection for such sites, Mr McVeigh said. [Text] [Canberra THE AUSTRALIAN in English 16 Dec 82 p 1]

CSO: 5000/7538

PESTICIDE-POISONED FISH DEATHS SAID TO BE SPREADING

Economic Losses Surveyed

Bangkok THAI RAT in Thai 7 Jan 83 pp 1, 7

[Article: "People Who Raise Fish Are Going Bankrupt. Disease Among Fish Is Spreading Quickly and Has Affected 21 Provinces. A Committee Has Been Formed to Quickly Determine the Causes and Solve the Problem Before the Economy Collapses"]

[Text] Disease among fish has spread to 21 provinces. The owners of fish ponds are frightened. They have constantly monitored the condition of the fish in the ponds. At the same time, the special committee charged with studying the matter and finding a way to prevent the disease among fish from spreading has gone and taken samples of fish and water from various provinces for analysis. It is expected that the results of the analysis will be known by next Monday. THAI RAT surveyed some of the fish markets in Bangkok and found that fish are still being sold as usual. In some places, sales are down and [the sellers] said that if the disease continues to spread, they will go bankrupt.

Yesterday, 6 January, Mr Bunua Prasoetsuwan, the deputy minister of agriculture and cooperatives, and Commander Sawang Charoenphon, the director-general of the Department of Fisheries, talked with reporters at the Ministry of Agriculture and Cooperatives about the serious spread of disease among several species of fresh-water fish. This has been going on since October 1982. The fish show several abnormal symptoms. For example, the bodies of the fish are covered with sores of various sizes; the flesh is rotting; the stomachs have holes in them; half the body is missing; the scales are protruding out, they are swollen and they are falling off; the eyes are glassy and swollen and they are falling out; and the fins are torn. There are 15 species of fish that have such symptoms. These are: the snakehead, the climbing fish, the "nin" fish, the mullet, the carp, the "kaem cham" fish, the "siu" fish [Rasbora], the "saroi" fish, the gourami, the catfish, the "lot" fish, the eel, the "kra thing" fish [Mastocembelus], the needle fish and the "kathungwe" fish.

The deputy minister of agriculture and cooperatives and the director-general of the Department of Fisheries said that the disease is most prevalent in localities in the central provinces, particularly in the following 21 provinces: Bangkok, Samut Prakan, Nonthaburi, Pathumthani, Chachoengsao, Nakhon Nayok, Phra Nakhon Ayuthaya, Ang Thong, Singburi, Chai Nat, Nakhon Sawan, Saraburi, Suphanburi, Nakhon Pathom, Ratchaburi, Phetchaburi, Kanchanaburi, Samut Sakhon, Samut Songkhram, Prachinburi and Chonburi.

The director-general of the Department of Fisheries said that immediately after the disease began spreading among fish, the Department of Fisheries checked various types of fish and various water sources where the disease had been found. Fishery officials were sent to collect samples. The fish brought by the villagers were examined for signs of disease. The water was analyzed. Officials from the Agricultural Toxic Materials Division, Department of Agriculture, helped search for toxic substances in the water and fish samples. The examinations discovered that various parts of the fish had various infections. For example, leeches, protozoa and fungi were found in the gills, protozoa were found in the mucilaginous substance on the bodies of the fish, protozoa, fungi and bacteria were found in the sores, and bacteria were found in the viscera. Besides this, laboratory tests using various antibiotics to treat and control the disease were conducted. The drugs found to produce good results include chloramphenicol, kanmycin, neomycin, polymyxin B and Bactrim.

As for the analyses conducted on the quality of the water samples, most were found to be normal; the water should not have been dangerous to the health of the fish. The only thing was that the amount of oxygen in the water was found to be below normal and not suitable for certain types of fish. This may have resulted because of foreign matter becoming mixed in with the water. Concerning the tests for toxic substances, DDT and Deldrin, which are pesticides, were found in the bodies of the fish. The water contained both DDT and Deldrin and the insecticide paraquat in the ratio 0.03 to 0.051 parts per million. The report on the analysis stated that paraquat was found in every water sample. This level of paraquat is rather high and is harmful to the health of aquatic life. This was learned from the initial tests in the toxic substances study [conducted] by the National Fresh-Water Fisheries Institute. The level of paraquat, or grammokson, dangerous to catfish is only 0.01 ppm. This is a substance that is fairly poisonous. If it does not kill the fish, it weakens them, causes sores and makes them susceptible to other diseases.

The director-general of the Department of Fisheries said that even though it cannot now be definitely proven what is causing these symptoms, based on the initial data and the results of the tests on the water samples and diseased fish, it can be said at this point that this has been caused by various chemical substances used in agriculture and other activities. After these substances are used, they are eventually washed into the water sources. There are several hundred such chemical substances that are in use in Thailand and the amount that is used is increasing every

year. Some types do not decompose for a long time and can become part of the food chain of aquatic life for a long time. Even though some types decompose rapidly, they are highly toxic and so they too pose a great danger to aquatic life. Besides this, in Thailand, the sale and use of these chemicals is not controlled strictly. This has created problems for the environment. Thus, there should be a committee to consider each type of chemical substance that is imported and used in Thailand and to determine how suitable each one is. The committee should weigh the benefits and dangers to humans, animals and the environment. This committee should be composed of representatives from the sectors concerned such as the Ministry of Public Health, the Ministry of Agriculture and Cooperatives, the Ministry of Industry and the Ministry of Commerce. In particular, the Department of Fisheries should take part in these discussions. There must be data on the amount of each substance that poses a danger to aquatic life so that the risks of using these chemicals can be evaluated correctly. When a particular type is found to be unsuitable, its use, or import into the country, should be prohibited.

As for solving the problem and controlling and treating [the disease], Commander Sawang Charoenphon said that the problem should be solved at its source. The use and import [of chemicals] should be discussed, that is, there should be control. Matters must be observed closely and great care must be taken in areas where there are diseased fish. Those who raise fish should not let water into the ponds during this period. But if this is necessary, they should let in as little water as possible (this should not exceed one-third or one-fourth of the total amount). They should place bags of charcoal at the point where the water flows into the pond in order to filter out some of the toxic substances.

Protecting fish that live in natural water sources is very difficult. But if the environment in which the fish live is improved, the spread of the disease will slow down. As for fish that are raised, if they start to show symptoms of the disease, those who raise fish should take a sample of the fish and water for examination at the aquatic life disease clinic of the Natural Fresh-Water Fish Institute in Bang Khen.

The director-general of the Department of Fisheries provided the following details on how to control this problem:

1. Concerning the toxic substances, at present, various chemicals are being used more and more and this is harming the environment. Because these chemicals eventually end up in the water and because aquatic life must live in the water, it is impossible for the [aquatic life] to avoid this.

The factors concerned are: Pesticides that are dangerous to both pests and other living organisms that should not be killed are used; the pesticides are not used in the correct way, at the correct time or in the right places; the wrong types of pesticides are used; excessive amounts are used, or more is used than is necessary; and pesticide sellers and users

are not supervised. Thus, recommendations should be given and people should be trained in the proper use of pesticides in those cases in which it is really necessary to use such chemicals. The principle of using as little as possible should be followed. There should be a committee to supervise the use of toxic substances. This committee should be composed of representatives from the government sectors concerned, such as the Ministry of Public Health, the Ministry of Agriculture and Cooperatives, the Office of the National Environment Board, the Ministry of Industry and the Ministry of Commerce. Such a committee should be formed in order to discuss matters concerning the various types of pesticides or toxic substances and to determine what their effect on health and the environment is. Any type found to be unsuitable or more harmful than beneficial should not be allowed into the country or its use and sale should be prohibited. In particular, the fishing sector must be represented on this committee because these toxic substances often end up in the water sources. A great effort should be made to promote greater use of natural methods of controlling pests (biological control) in order to reduce the use of these toxic substances.

2. Concerning aquatic life, an effort must be made to protect the aquatic life, and care must be taken not to use the water in places suspected of being contaminated by the toxic substances used in agriculture or industry. This must be done by observing the condition of the aquatic life in the natural [surroundings] and by being aware of the periods when chemicals are used and of the places or areas where chemicals are thought to be in use. Before water is let into the ponds, it should be filtered first. For example, it can be filtered using charcoal or other absorbant material. In raising fish, there should be a pond for storing water for use in other ponds. In replacing the water in a pond, not all should be replaced at one time. Only small amounts of water should be let in as necessary.

3. Concerning the people, in using water for domestic use and consumption, people should consult with public health officials. When diseased fish are found, they should be buried in order to prevent the disease from spreading. When such fish are found, they should not be eaten or used in any other way.

Mr Bunua Prasetsuwan, the deputy minister of agriculture, said in conclusion that the Ministry of Agriculture and Cooperatives will provide urgent aid to those people who have suffered losses by providing breeding fish and making funds available for carrying on work. Special funds have been requested from the government in order to provide this help.

That same morning, the committee charged with conducting a study to find out the reasons and find a way to prevent the disease that is now afflicting various species of fish from spreading, which is headed by Professor Thawon Watcharaphai, the acting vice rector for academic affairs at Chulalongkorn University, sent committee members -- including Dr Kriengsak Saithanu, Associate Professor Kriengsak Phularup and Dr Chirasak

Tangtrongphairot from the Faculty of Veterinary Science and Associate Professor Sutthichai Temeyawamit, Associate Professor Maen Amonsit and Mr Somkiet Piyathirathitiwarakun from the Faculty of Science -- to collect samples of diseased fish, water and soil in Phan Thong District, Chonburi Province and in Ban Pho and Bang Pa Kong districts in Chachoengsao Province.

After the soil, water and fish samples were collected, Dr Kriengsak Saithanu told reporters that these samples had been collected in order to determine for sure what is presently causing various species of fish to become diseased. At present, what exactly is causing this is not known. [He said that] we must wait for the results of the tests before we will know whether the residual chemicals from the pesticides regularly used by farmers are the cause of this. The tests are expected to be completed by this coming Monday. "This epidemic is a very serious matter. Our country has never had an epidemic that has spread throughout almost all of the country like this." Dr Kriengsak said that the aeromonas bacteria is normally present in water. But it is not known what has caused it to grow and spread so quickly like this. And if this bacteria grows in catfish, it spreads even more quickly. Tests were once conducted by injecting this bacteria into catfish. The result was that the fish came down with this disease in only 12 hours. The snakehead is a type of fish that is easy to raise. It has great resistance to diseases and has never been affected before. But this time, snakehead in the rivers and canals have come down with this disease that rots the bodies of the fish. This is a problem that must be solved very quickly.

Our reporter talked with Mr Charan Somsanthan, a fisheries official in Bang Pa Kong District. He said that he has been receiving reports from farmers about such diseased fish since July 1982 and that he has reported this to higher echelons. Officials from the Agricultural Toxic Materials Division, Department of Agriculture, Ministry of Agriculture and Cooperatives, came and collected fish and water samples. They conducted tests but no toxic substances exceeding normal amounts were found. "At that time, the disease had not spread very much. But now, it has spread all along the Ban Pa Kong River and into the canals too." Mr Charan also said that, at present, more than 1,300 farmers in Bang Pa Kong District have registered to raise fish and each one has invested at least 1 million baht. Thus, they are now facing great difficulties.

Mr Prayut Damnoenchanwanit, the kamnan of Bang Samak commune, Bang Pa Kong District, said that, at present, most of the villagers who raise fish are experiencing problems. While the fish in the ponds have not come down with the disease, since the fish in the Bang Pa Kong River have been affected, the villagers do not dare pump water from the river into their ponds. But if they do not pump water, ponds will dry up and the fish will die. "We do not know how to solve this problem. If this goes on much longer, they will all go bankrupt."

Mrs Muan Athit, age 38, who lives at 190 Village 9 in Ban Bang Saman, Bang Nang Commune, Phan Thong District, Chonburi Province, told a reporter that this has created problems for her family and her neighbors, who rely on catching fish for most of their food. Since an epidemic is spreading among the fish, they are experiencing a shortage of food. Now, they are eating only vegetables. "The snakehead with this disease really stink. We don't dare eat fish from this canal. [Usually] we catch many fish during the 2-3 days before the water dries up but now we don't dare go fishing since we probably wouldn't be able to sell them. At present, I am eating only fried vegetables," said Mrs Muan sadly to the reporter.

In Singburi Province, there was a report on 6 January that at 1100 hours, Mr Wichien Ruongdet, who lives at 96/1 Village 3 in Bang Nam Chieu Commune, Phromburi District and who raises fish for a living, went and informed Mr Chamnan Chansaeng, the fishery officer in Phromburi District, that the fish in his three large ponds had the same disease as fish elsewhere. The officer went and checked this and sent a fish to the provincial fisheries office in order to send it to the National Fresh-Water Fish Institute for analysis. As for the fresh-water fish in Village 6, Thoeng Oen Commune, Inthaburi District, which was the first place in Singburi Province where diseased fish were found, samples of the fish were sent to this institute for analysis. Dr Sitthi Bunyarattanaphlin, the head of the Fish Disease Section, was the person responsible for conducting the analysis. Leeches, fungi and lower-order organisms of the protozoan type were found in the gills and body of the diseased fish. But it was not possible to say what type of organism caused the disease. As for how to solve the problem, officials concerned have suggested that 3 grams of alkali flakes per 1 cubic foot of water be put into the ponds every other day. If this is done three consecutive times, it may reduce the spread of the disease or even put an end to the epidemic. The officials have also suggested that the fish that have died from this disease be burned or buried.

In Ang Thong Province, Mr Warun Suntharalak, the headman of Village 3 in Phai Chamsin Commune, Wisetchaichan District, and Mr Thawatchai Niyomprasoet, the district fisheries officer, told a reporter that, at present, many snakehead and carp in this locality were found decomposed. When the district fisheries officer cut open the stomachs of these diseased fish to check them, the fish were found to be very pale as if they did not have any blood. This disease has now spread into the Noi River. The fish float to the surface and soon die. Besides this, this disease has spread into the garden ditches that the villagers use to raise fish. Thus, there is a great fear that the villagers will consume these diseased fish, which may be dangerous to their health.

Mr Thawatchai Niyomprasoet, the Wisetchaichan District fisheries officer, also said that the sores found on the bodies of the fish are usually about an inch long. The fish are covered with these sores. As for what is causing the fish to rot like this, it is believed that the pesticides used by the farmers on the rice and vegetables are washed into the canals and ditches and that it is these pesticides in the water that is making

the fish sick. Mr Thawatchai said that this disease, which causes the fish to rot, can be cured by using powdered terramycin mixed with ordinary salt water (sea water). When this mixture is applied to the fish, it cures the disease. But when a widespread epidemic breaks out like this, it is difficult to provide treatment. However, the district fisheries office has reported this to the Department of Fisheries and it has told the people that they should definitely not eat fish with this disease.

In Suphanburi Province, Mr Bunua Prasoetsuwan, the deputy minister of agriculture and cooperatives, and his team went to visit people who earn their living raising fish and who have suffered losses from this epidemic. Most of the losses have occurred in Makham Lom Commune in Bang Pla Ma District. [They made the trip] in order to find ways to provide help. From the initial survey, it was learned that there are 1,010 fish ponds in Suphanburi Province. The fish in more than 300 of the ponds, or about 30 million fish, have died. The losses amount to approximately 600 million baht. These facts were reported to Mr Bunua by Mr Phirom Bunyoprahan, the provincial fisheries officer. There are 200 ponds in Makham Lom Commune and 120 of the ponds have been lost. Mr Bunua promised that he would distribute breeding fish after this matter is cleared up and that each person affected would be given an interest-free loan of 50,000 baht.

As for the results of the studies concerning this epidemic, Commander Sawang Charoenphon, the director-general of the Department of Fisheries who went on this trip, told our reporter that the study has found that the skin and muscles of the fish seem to have come in contact with some toxic substance. At first, it was assumed that this poison came from the pesticides left in the fields. During the harvesting season, the farmers drain the water from the rice fields into the rivers and canals. Besides this, this disease has been spreading among the fish since last October. Nineteen provinces in the central region have suffered losses from this epidemic.

Mr Bunua Prasoetsuwan said that he has ordered the Royal Irrigation Department to release water into the rivers in the central region, particularly the Tha Chin River, in order to wash the water containing these toxic substances and this disease into the sea. As for solving the immediate problems, Mr Bunua said that the owners of the fish ponds should place bags of charcoal in the drainage ditches in order to make a natural filter and keep the infected water from the rivers from getting into the fish ponds. Hoses should be used to spray water in order to increase the amount of oxygen in the water in the fish ponds. Alkali flakes dissolved in water should be added to the water. Concerning the cost of this alkali alone, it is thought that Makham Lom Commune will have to spend approximately 400,000 baht. An urgent request for this money will be made. In conclusion, Mr Bunua repeated that an order will soon be issued warning the people not to eat diseased fish.

Mr Maitri Duangsawat, a scientist from the Ministry of Agriculture and Cooperatives who went with this team, added that the investigations had found aeromonaes hydrophiula bacteria, which causes fish to rot. Abnormal amounts of this bacteria were found in the irrigation canals in Singburi, Ang Thong, Suphanburi and Kanchanaburi. And this bacteria has been found in the food used to feed the fish. Besides this, analyses of the water in the fish ponds showed that the water contained gammocxon paraquat, which is a substance found in pesticides. This substance plays an important part in reducing the oxygen level in the water. And when there is too little oxygen the water turns bad. When gammocxon paraquat comes in contact with the mucilaginous substance on the bodies of the fish, it causes a reaction and the bacteria spreads more rapidly.

The reporter who accompanied the team of the deputy minister of agriculture and cooperatives on this visit to owners of fish ponds in Makham Lom Commune reported that the workers have mobilized people to take the dead fish out of the ponds, scale the fish and sell them to merchants from the northeast and north in order to make preserved fish. The heads of the fish are sent to Singburi where they are used to make fish sauce. In processing the dead fish, they have not been able to process all the fish in time because of the large number of diseased fish that have died. Besides this, at almost every pond, there are piles of snakehead waiting to be processed.

Mr Wichai Duangchan, the headman of Makham Lom Commune, who owns 20 fish ponds and who is the third largest fish breeder in the commune, has suffered losses from this epidemic. He said that he has contacted several scientists to have them provide help. But no one has been able to help. He has had to let the fish die and so he has suffered losses at all his ponds. He too has had to process the dead fish and sell them to make preserved fish and fish sauce. This is the only way to reduce financial losses.

In Samut Prakan Province, Mr Kaeo Tanthai, the provincial fisheries officer, said that diseased fish have been found in Samut Prakan Province too. Such fish have been found in the Samrong Canal, which runs through Bang Phli District. The owners of the fish ponds have been warned to solve the immediate problems, such as reducing the amount of fish food in order to keep from adding more infected water.

In Nakhon Nayok, at 1630 hours yesterday there was a report that said that several of the major fish-pond owners in the province are becoming very alarmed and that they are constantly monitoring the fish in their ponds. Mr Phieu Saelo, who is the owner of the Saeng Sawang Phan Pla pond, which is the largest pond system with more than 300 ponds, was interviewed. He raises mostly "sawai" fish. Two other smaller owners in Muang district were interviewed too. The reporter was told that the fish in the ponds do not show any symptoms of being sick. Since the stories about fish becoming sick began to circulate, fish have frequently been caught and examined. But provincial fishery officials who have taken fish

suspected of being diseased to have them examined have found many diseased fish that have the same symptoms as those taken from the Phrom Mani Canal.

However, from a survey conducted on the situation at the fish markets, it was learned that the price of fresh-water fish has not dropped. Snakehead is still selling for 35 baht per kilogram, and catfish is 50 baht per kilogram. But the fish merchants are worried about losing money because the people and housewives are not buying fish. Very few are buying fish. The merchants are complaining loudly that if the situation continues like this, they will have to switch to selling chicken instead since most people are purchasing chicken for their families to eat. As for the well-known pushcarts that sell baked snakehead, they are about bankrupt. Few people are purchasing anything from them. They are thinking of switching to selling something else.

In Ratchaburi, a news report issued at 1645 hours said that three major fish breeders who raise snakehead and catfish told the reporter that the fish in their ponds have not had any problems concerning this disease that is now in the news. Their fish do not have any sores and do not have any symptoms from infected water.

But based on a survey of the fresh-food markets in Muang, Ban Pong and Photharam districts, the fishsellers are all experiencing great difficulties. On 6 January alone, the fishsellers in Muang district who sell snakehead and catfish at the fresh-food markets each lost about 2,000 to 3,000 baht. Few people have been buying fresh-water fish since reports about this disease appeared on television and in the newspapers. Some of these fishsellers who once sold 100 fish a day are now selling fewer than 10 per day. The survey also found that while few people in Ratchaburi are buying fresh-water fish, the price of fish has not fallen. Snakehead are still selling for 35 baht per kilogram. Larger fish used to make steamed fish are selling for 40 baht per kilogram.

In Kanchanaburi Province, a reporter has reported that the epidemic among these types of fish has spread from where it first originated in the area around villages 1, 2 and 3 in Tha Lo Commune, Tha Muang District -- which is composed of fields with creeks, canals and ponds that the villagers use to store water for use and as sources of fish that they catch for food -- to the fields on the left bank of the Krong River in Phongtuk, Thai Sao, Khao Sam Sib Hap and Khoktabong communes in Tha Maka District and In Nong Pla Mo Commune in Ban Pong district, Ratchaburi Province. These areas are all located near each other. These areas together comprise 20,000 to 30,000 rai.

A reporter accompanied Mr Wirot Chombun, the Tha Maka district fishery officer, on a trip to survey the places where this disease has been reported to be spreading rapidly, that is, in the area near Wat Khao Yai in Village 1, Khok Ta Bong Commune, Tha Maka District. There are three public ponds here. These ponds are used by both the monks and the villagers. It was

found that the numerous fish in these ponds have this disease and that many have died. Most of the fish are catfish and snakehead. The stench is so bad that no one dares use the water, even for raising animals. People are afraid that using the water would be dangerous and so they have to obtain water from nearby areas. It is feared that there will be a shortage of water for consumption and use in the coming period in the four communes mentioned above.

Mr Bunma Arom, the headman of Village 1 in Khok Ta Bong commune, Tha Maka District, told the reporter that the lives of the villagers in this area depend on the water from the various water sources, including that in the ponds in their fields. And they catch fish from these water sources too. This has been the case for several generations. But since this epidemic broke out, no one has dared use the water or eat the fish. At the same time, Mr Bunma gave an example. He said that he has a pond at his house. When fish began dying in great numbers, he did not dare use the water any more. He has now pumped all the water out. His family is now experiencing a water shortage. In addition to his own home, Mr Bunma took them to see the fish pond of Mr Sanoh Wanphen. This pond, which is about 50 square meters in size, is located along the side of the path through the fields. Fish were once abundant here. The pond was full of diseased fish that were about to die. It was a pitiful place.

On 5 January, officials from the Agricultural Chemistry Division, Department of Agriculture, Ministry of Agriculture and Cooperatives, went to collect water and soil samples in villages 1, 2, and 3 in Tha Lo Commune, Tha Muang District, and in Khok Ta Bong Commune, Tha Maka District, in order to analyze these samples to find out the causes and in order to find a way to solve the problem. Something worth noting is that in the Khaeo Noi and Khaeo Yai tributaries, which converge to form the Klong River and which both flow through Kanchanaburi Province to Ratchaburi and Samut Songkhram, no fish with this disease were found.

Yesterday evening, Mr Thamrong Chamdoempheedsuk, the director of the Office of the Consumer Protection Board, told reporters at the Government House that the Office of the Consumer Protection Board has collected samples of fish with very frightening sores from Ayuthaya, Suphanburi and Nakhon Pathom and sent them to the Department of Medical Sciences. These samples were taken from ponds and natural water sources. Also, water samples were taken from water sources that are giving problems and turned over to officials for analysis in order to learn the cause for sure. Careful tests must be run. In particular, the fish must be examined in order to determine whether the bodies of the fish contain mercury, arsenic, copper or pesticides. And the water must be analyzed to determine whether it contains any such substances too.

Mr Thamrong said that when this was reported, officials reported back that the Department of Medical Sciences was dissecting the fish in order to culture the bacteria and examine it. And it must then be tested on

animals to see if it poses a danger. Thus, the results of the detailed tests will not be known before next week at the earliest. During this period, the pond owners are being asked not to sell these fish. After the tests have been run and the results are known, the [pond owners] will be informed.

At the same time, all of the fishermen have stopped their fishing activities because the water sources in general contain only diseased fish and no one at the markets will buy these fish. Things are dismal for the merchants at the markets. The people are complaining that the fish are cancerous and so they have stopped eating various types of fish such as snakehead, catfish, carp, "sawai," "krai," "krot," eel, gourami, "krathing" and climbing fish since large numbers of these types of fish in the water sources are dying from this disease.

In Nakhon Sawan, Mr Phisit Khachonwattanakun, the Chumsaeng District fishery officer, told reporters yesterday that, in Chumsaeng District, there are more than 1,000 fish ponds that raise various types of fish such as "sawai," "nin," carp and so on and this activity earns several million baht a year for the province. Besides this, there are about 200 other natural ponds. The Chumsaeng District fisheries office has sent officials to survey the places where the disease has infected fish and to ask where the disease is prevalent. They have also been instructed to provide advice on how to treat fish that have contracted this disease. They can use a valvet solution in the ratio 10 ccs of valvet to 4.5 liters of water. The diseased fish must be soaked in this water for 3 days. They must then be placed in clean water and kept separate for 6 days. Following this, they must again be placed in the medicinal solution in order to kill all the bacteria. In Chumsaeng District, the survey has found that the disease has begun to appear in the natural ponds in Bang Khem Commune. But few ponds have been affected.

Reporters have followed the situation at the markets throughout Bangkok. At the Lat Phrao Saphan 2 market on Lat Phrao Road, Mrs Somnuk Rattanaoet said that she had been selling fish for a year now. She obtains fish from Samut Prakan. The fish are of good quality, and they are fresh. But when the press started publishing stories about fish being diseased, sales declined greatly. Every day, she orders 50 kilograms of snakehead. She usually sells 30-40 kilograms a day. But now she is not selling even 10 kilograms. Live snakehead sell for 40 baht per kilogram; smaller ones sell for 30-35 baht per kilogram. Dead snakehead sell for 30 baht per kilogram. Live catfish sell for 35-40 baht per kilogram while dead catfish sell for 30 baht per kilogram.

Mrs Somnuk said that when home owners who are regular customers of hers come to make a purchase, they ask whether the fish are diseased. But the vendors who purchase the fish to make stew do not ask. They try to choose fresh fish that do not have sores. "These past few days, fish sales have been very poor because of the news in the newspapers that the fish are diseased. If they are kept too long, they die," said Mrs

Somnuk. As for the venders that have their shops nearby, they said that they obtain fish from Minburi. They complained that they cannot sell any fish at all because the buyers are afraid that the fish are diseased.

At the central market of the Farmers' Market Organization on Phahoyothin Road, on the afternoon of the same day, Mr Somyot Phrabun, age 21, who sells both barbecued fish and fresh fish, said that he obtains his fish from Ayuthaya. He selects only fresh fish. The reporter asked him if sales were still good in the wake of all the reports about diseased fish. Mr Somyot said that sales had not fallen because he sells fish to restaurants. He sells catfish for 75 baht per kilogram; climbing fish sell for 45 baht per kilogram. "Today, I ordered 11 kilograms; I have sold 7 kilograms. Sales are still normal because the people who purchase from me know how to select fish," said Mr Somyot.

At the Si Thai market in the Saphan Khwai area, at 1600 hours the same day, the fresh-water fish sold from stalls were not selling. The venders were selling them at much lower prices. The normal price for snakehead is 40-45 baht per kilogram. But the venders were selling snakehead for only 30 baht per kilogram. But even so, few people were interested in buying the fish. During the period that THAI RAT observed the situation there, the venders lowered the price to only 20 baht per kilogram. But the result was the same. Few of the people passing by bought any. As for inside the market, the fish stalls are usually sold out quickly but [this day] many of the stalls still had much fish on hand. An example is the stall of Mrs Chuan Prembamrung, age 48, a vender from Khlong Chao in Paedriu District. She complained that normally she would have sold all the fish by now. But today she had sold only about one-fourth the normal amount even though she had lowered prices in order to compete with the other stalls. "I obtain my fish from Paedriu. There is no problem of disease there. But the consumers do not believe me. They are afraid. Since the beginning of the year, I have lost more than 10,000 baht. I have sold snakehead from the time it sold for 4 baht per kilogram to now when it sells for 40 baht. I have never suffered such losses as I have during this period."

At the Thewaratkunchon market on Samsen Road, Mr Phirom Chaikla said that he had been selling fresh-water fish for a long time. He obtains his fish from Hua Ta Khe in Phra Khanong. That particular day, he had not sold any because of the reports about diseased fish. This was the case even though his fish did not have any sores and were not diseased. And when he cut the fish into fillets and laid them out for sale, people did not come to purchase them like before. "This situation is hurting me," complained Mr Phirom.

At the same time, at the Yot Market in Bang Lam Phu, Mrs Siem Thawikhun, age 35, who sells all types of fresh-water fish, told a reporter that fish sales were poor today. Some restaurants that purchased fish have returned them. And even though she has lowered prices from 36-38 baht per kilogram to 30 baht per kilogram, customers are still not purchasing

fish like before. "My fish are all good. They do not have sores or any disease. But people aren't buying. Look at all the fish I have left," said Mrs Siem to the reporter.

Kanachanaburi Incidence

Bangkok THAI RAT in Thai 21 Dec 82 pp 1, 16

[Article: "Fish Covered With Sores; Fishery Officials Warn People to Be Careful"]

[Text] The people in Kanchanaburi who eat snakehead and catfish have been warned to be careful about toxic substances from pesticides. Many dead fish have been found. Some of the live fish that have been caught have deep sores and others have sores that run the length of the body.

During the dry season in Kanchanaburi, the farmers fish for catfish and snakehead in the fields. This provides them with a supplemental income in addition to the money they earn from selling their agricultural produce of the past harvesting season. But in villages 1, 2 and 3 in Tha Lo Commune, Tha Muang District, Kanchanaburi Province, more than 50 percent of the fish caught have sores on their bodies. Besides this, many fish with sores on their bodies have died. The farmers have all rushed to catch these fish and sell them at a low price to the merchants at the fresh-food markets.

As for these sores, reports have said that there are round-shaped sores on the bodies of the fish and that the heads of the fish look as if they had been scalded by hot water. In some cases, the scales have fallen off, the skin has decomposed and the fish stink. But some of the fish have sores running the length of the body. The people who have seen these fish say that these have cancer. As for the merchants who purchase these fish at low prices, they sell them to the people at a low price. Thus, the people rush to buy these fish without taking the time to consider whether eating these fish is dangerous.

Concerning this matter, Mr Chan Utsaha, the Kanchanaburi provincial fishery officer, told reporters on 20 December that, normally, snakehead and catfish rarely get sick. Thus, it is believed that these sores have been caused by the pesticides or the chemicals used to eliminate field crabs that the farmers sprayed on the fields during the transplanting season. The poison has entered the bodies of the fish that live in these fields and caused these sores. These toxic substances are probably still present in various parts of the fish. Something similar once happened in the south. Thus, people have been warned about eating these fish since eating such fish might be dangerous to people's health.

Disaster Control Measures

Bangkok PHYA KHRUT in Thai 12 Jan 83 pp 1, 2, 16

[Article: "Irrigation Department Holds an Immediate Conference. Large Numbers of Snakehead Found to Have the Disease; People Forbidden From Eating Them. Permission Given to Give 40 Million Baht In Relief"]

[Text] Scholars are worried. Lead is causing the fish to die. Eating such fish is dangerous. Phisan has confirmed this. Large numbers of diseased snakehead have been found. People have been warned not to eat such fish. The Irrigation Department has held an urgent conference to make preparations to drain water. If this does not help, water from the dams will be released. The government has given permission to provide 40 million baht for relief.

General Sitthi Chirarot, the minister of interior, who was interviewed by reporters on this epidemic among fish, said that he has ordered the governor of Phra Nakhon Sri Ayuthaya Province, who made an official inspection last Saturday, to monitor things and ask the people not to use diseased fish to make preserved fish or fish sauce. People have been asked to think of the safety of the masses before they do anything and not to think only about making some money.

General Sitthi also said that these merchants must be honest with their customers and tell them when these items were made in order to ensure the safety of the consumers.

As for the problem of financial losses, General Sitthi said that he is concerned not only with the problems of the owners of the fish ponds but that he is also concerned about the fish in the rivers and other natural water sources since many people earn their living from [catching these fish]. If this disease becomes widespread, the problems will multiply greatly and when people experience economic problems, robberies increase too.

General Sitthi talked about the cause of this disease. He said that he does not want to blame anyone. Mistakes were made and they were not controlled from the very beginning. Concerning fertilizers and pesticides, the sellers have advertised these items as being beneficial and the buyers have used them without following the directives. Thus, problems have arisen. "I do not want to say much. That wouldn't be good. Usually, my family doesn't eat salt-water fish and now I have forbidden my family from purchasing fresh-water fish too."

When asked about the troubles of the owners of the fish ponds, few of whom are poor people, General Sitthi said that regardless of whether they are poor or not, we must show sympathy and help them. They had to borrow money to invest in this and must pay interest. As for what the

government will do to reimburse them, as much help as possible must be given but this does not mean that their losses must be covered completely.

Mr Phisan Mulasatsathon, the undersecretary of the Ministry of Interior, said that eliminating "top chawa" plants in accord with the policy of the Ministry of Interior is not the cause of this epidemic among fish that is now becoming a problem.

In an interview given to reporters yesterday morning, the undersecretary of the ministry of interior said that, yesterday, the special committee in charge of solving this problem went to Suphanburi. They placed initial losses at approximately 30-40 million baht. As for what has caused these losses, the committee said that it would urgently look for the causes in order to inform the people as quickly as possible.

However, the undersecretary of interior said that at today's cabinet meeting, the committee will propose that imported pesticides be strictly controlled.

As for providing aid, the undersecretary of interior said that the government will provide both short-term and long-term aid to the people. The prime minister is very worried about this. At present, permission has been granted to provide 50 million baht in aid.

Mr Phisan added that most of the diseased fish are snakehead, which are used to cook native dishes. Other species of fish have not been affected very much because they feed on the surface of the water and do not ingest much poison. Only the snakehead ingest lead. Thus, people should not eat such diseased fish for the time being. However, if ponds are made, they should be built approximately 3 meters away from the canals or water drainage pipes since the lead will be filtered out naturally and not reach the ponds.

In his capacity as the chairman of the subcommittee on residual toxic substances of the International Food Committee, Dr Prayun Dimak, the director of the Toxic Materials Division, Department of Agriculture, Ministry of Agriculture and Cooperatives, told reporters that this matter shows that pesticides can cause losses later on while the companies that sell such things have grown rich. These substances have caused an epidemic among fish.

Associate Professor Rabin Rattanaphani, the dean of the Faculty of Veterinary Science at Chulalongkorn University, told reporters that, at present, he has sent a team of instructors from the Faculty of Veterinary Science, headed by Dr Kriengsak Suaithanu, to inspect matters in 21 provinces in the central region where this problem is occurring. They also took with them about 15 medicines for people who have eaten diseased fish and come down with diarrhea. The reporter also asked whether there were other substances involved besides paraquat and dieldrin. Associate Professor

Rabin said that from what has been learned to date, lead has also been found. Most of this has been found in snakehead, which have ingested the lead. Thus, he is warning people to be careful about eating these fish.

Reporters also questioned Mr Sunthon Ruonglek, the director-general of the Irrigation Department, about solving the problem of toxic substances getting into the water sources, which is now becoming a major issue. Mr Sunthon told the reporters that there is sufficient water above the dams but that it cannot all be released. As for those who have expressed the idea that the water in the dams should be released in order to flush away these toxic substances, we are discussing the possibility of this. But there are also other methods such as closing the gates to the various canals that are having problems and then draining off the water. This would change the water and solve the problem too.

Mr Chuan Leekphai, the minister of agriculture and cooperatives, talked about preventing this disease from spreading any more. He said that, as a first step, he has ordered the Irrigation Department to drain the water from the dams quickly in order to wash the contaminated water into the sea. This must be done in such a way as to dilute [the substances] and not affect coastal fishing. As for long-term control, the use of chemicals in weed abatement and the use of pesticides by farmers will be controlled. Also, people will be taught how to use these chemicals correctly. "If things are carried on really seriously, it may reach the point where the use of these substances is prohibited," said Mr Chuan.

These observations were made by the minister of agriculture during the trip that he made with Mr Bunua Prasetsawan, the deputy minister of agriculture, and a group that had gone to observe the situation in the Rangsit Canal area in Pathumthani Province. The spread of this disease here has made the people afraid of eating these fish. The minister's party went to see a fish pond in that area that belonged to Mr Riem Noichawi, who lives in Village 10, Bungkhohai Commune, Lam Lukka District. The ditch running through the orchard had been made into a natural fish pond. All of the large fish in this pond had died from this disease. Only the small fish were still alive. This is because these fish have been ingesting the residual chemicals for a shorter period of time than have the bigger fish.

During his trip to see the state of the epidemic among the fish, the minister of agriculture questioned the farmers in that area about the use of pesticides. He was told that many of the farmers in the Rangsit Canal area still like to use various pesticides that government officials have prohibited. But the farmers still use these because they believe the advertisements put out by the companies that produce and sell the pesticides.

Wing Commander Thikon Phankrawi, the minister of science, technology and energy, has ordered the Office of the National Environment Board to analyze the water in Rangsit Canal as soon as possible.

At present, many localities in the central region are having problems with diseased fish. This disease may stem from the water in the rivers and canals. This water that is a poison to the fish may be dangerous to people too. Concerning the analysis of this water, Wing Commander Thinkon has ordered that water used both for consumption and for daily use be analyzed.

A news report stated that, yesterday morning, the minister of science, technology and energy held a conference for high-ranking officials in order to find a way to solve the water pollution problem. The Office of the National Environment Board has conducted a study in order to find a way to control the quality of the water. The quality of the water in the principal rivers in the central region has been surveyed. Data have been collected continuously since 1980. This project is concerned with the Pa Sak River and with the fish epidemic in Suphanburi Province too.

In surveying the quality of the water, the Office of the National Environment Board has worked together with the Science and Technology Research Institute of Thailand. It will take another year to survey and analyze the water in the Tha Chin river in order to be able to stipulate measures for controlling the quality of the water and obtain better results.

11943

CSO: 5000/4308

THAILAND

BRIEFS

SOUTHERN SOIL PROBLEMS--In carrying on agricultural development activities in the poor rural areas of the south, the Land Development Department conducted a survey and found that most areas in this region are experiencing problems with salty and acidic soil. More than 100,000 rai have a very serious problem with salty and acidic soil. This poses a very great obstacle to agricultural development in the south. This is because this problem directly affects the production activities and the use of the land by the farmers. Besides this, some areas have been left untended and some areas have a problem with "phru" soil. The Land Development Department is working with the Department of Agriculture, the Department of Agricultural Extension and the Irrigation Department to implement a program to develop the salty and acidic areas in the south in order to solve this problem. This has been included in the 1982-1986 plan to develop the poor rural areas. Concerning this project to develop the salty and acidic soil in the south, the goal is to develop the quality of the land resources that have a problem with salty and acidic soil and with depleted soil in order to increase soil fertility for production. [Text] [Bangkok PHYA KHRUT in Thai 17 Dec 82 pp 6, 10] 11943

CSO: 5000/4308

FOREST AREA LARGER THAN IN 1953

Havana GRANMA WEEKLY REVIEW in English 23 Jan 83 p 4

[Article by Roger Ricardo Luis]

[Excerpts] HAD ANYBODY ventured to ask before the Revolution triumphed in 1959 how many engineers, intermediate-level technicians or skilled workers were in the field of forestry in Cuba, the answer may well have been "Man, are you out of your mind?" accompanied by a sarcastic smile not devoid of pessimism.

Such an expression would have mirrored bitter reality. Whereas during the early years of the colony, Friar Bartolome de las Casas had written that one could travel the island from one tip to the other under the foliage of the trees, by 1902 the country only had 5.9 million hectares of forest left. Throughout the period of the pseudorepublic (1902-1959), as a result of indiscriminate felling of trees the figure shrank to 1.5 million.

It goes without saying that the country lacked a forestry development policy and that the politicians, big landowners and U.S. corporations in those times thought it was enough to have illiterate starving lumberjacks cut down as many trees as they could.

With the advent of revolutionary power, forestry was given priority, and in just 20 years over 950 million trees of different species were planted with a 60-percent survival rate. Today there are over 245 000 hectares of forests, a figure 85 times greater than all the land planted to trees during the 57 years of the bourgeois republic.

However, the effort made so far is not enough, for only 15 percent of our land is set aside for this purpose when we should have between 25 and 33 percent. This amount of forestland ensures an adequate ecological balance, is a vital factor for defense and environmental protection, and a source of economic development, among other advantages.

Thanks to the present huge national endeavor in forestry development due to an intelligent policy on training cadres, a vanguard force of scientists and technicians is attending a unique school in Cuba.

The Invasion de Occidente Forestry Polytechnic Center is located in La Palma municipality, in Cuba's westernmost province of Pinar del Rio. Its classrooms and laboratories are full of future intermediate-level technicians and skilled workers in forestry.

A new generation of experts has been trained at the school to carry forward the country's forestry development program.

So far the school has graduated over 2000 students, distributed as follows: 930 intermediate-level technicians, 1066 skilled workers, 288 production assistants and 101 intermediate-level agronomists enrolled in workers' courses.

The school's passing rate since it opened has fluctuated between 95 and 99.4 percent. This high rate is partly the result of the daily work of the 93 professors, many of whom are agronomists and forestry engineers graduated from the country's higher pedagogical institutes, who in one way or another have continued to improve their qualifications through postgraduate courses or else by taking university courses related to their field.

CSO: 5000/2012

BRIEFS

PINE TREE PLANTATION--THE PICTURE I get from my exploration of Pinalito is like an oil painting. Created by the Revolution, this plantation has over five million pine trees and now constitutes the best forestry project in Holguin province. Jose Estrada Garces is head of this reforestation area. He came from Pinar Redondo 21 years ago, but, as he says, "I took roots here like the first trees I planted. The forest you can see here didn't exist at that time. It was very rare to see a pine tree around here," Estrada told me. However, "now, there are millions of them." This man's rugged strength reveals the physical challenges of his job. He is a man of few words, but he becomes loquacious when we touch upon the subject which has become his very life: "We first prepared 56.1 hectares on La Mensura Mountain and in Gimbam-bay. That's part of the 300 hectares that had been deforested. Until then, they hadn't been tended because the terrain is very rough and you need different resources and equipment....Now that some of the problems have been solved we can start our work." For 1983, a complete reforestation of the back part of La Mensura Mountain is scheduled. There are also plans to conclude planting trees right up to the top of this high peak. Good terraces are needed to grow good timber species suitable for this terrain, which was badly eroded before 1959. The tree nursery program is going well and now has 198 000 saplings of the Mayari pine and majagua varieties. In November 1982, the preparation stage was completed, including production of seedlings and soil conditioning. There are only 25 employees working on the Pinalito plan. They look after 10 843 hectares of woodland and in addition take care of the tree nursery. [Ralsa Pages] [Excerpts] [Havana GRANMA WEEKLY REVIEW in English 23 Jan 83 p 4]

CSO: 5000/2012

COMBATING WATER PLANTS URGED

Cairo THE EGYPTIAN GAZETTE in Arabic 23 Jan 83 p 2

[Text] Egypt loses more than 3,000 million cubic metres of water yearly due to water herbs enough to irrigate approximately 500,000 feddans, stated Mr Ahmed Tolba, Director General of Herb Combat at the Ministry of Irrigation.

Speaking about the factors which resulted in the increase of water herbs in the Nile, and irrigation as well as drainage canals Mr Tolba remarked that the warm climate of Egypt and the rise in the percentage of Egypt and the rise in the percentage of fertilizers in drainage canals are the two main factors which contribute to the increase of water herbs.

Mr Tolba also added that according to a recent report issued by the Ministry of Irrigation, more than 40 per cent of the total length of irrigation and drainage canals throughout the country are infected by water herbs. As a result he declared the rate of water evaporation from these canals has increased up to three times the normal evaporation rate.

The Research Institute for combating herbs has made a number of studies in collaboration with the government of the Netherlands on the use of a special fish known as the "El-Mabrouk" to combat water herbs said Dr Ahmed Fakhri, Director of the Institute.

He added that the studies, which cost more than LE 2 million, revealed that the use of the "El-Mabrouk" fish is an effective method of combating water herbs in addition to the production of 350 to 400 kilogrammes of fish yearly from each hectare used to breed such a fish.

The Institute, stated Dr Fakhri, has also participated in a series of international conferences dealing with methods of combating water herbs held in the Netherlands, Australia, and Nigeria in order to get acquainted with the most recent developments in this field.--GSS

CSO: 5000/4607

ENVIRONMENT MINISTER'S DEPUTY MEETS WITH PRESS

Madras THE HINDU in English 17 Jan 83 p 9

[Text]

CALCUTTA, Jan. 16.

The Centre is setting up a task force for the entire Ganga basin for air and water management and soil conservation, according to the Union Deputy Minister for Environment, Mr. Digvijay Singh.

Mr. Singh told a press conference here today that guidelines for the task force had already been formulated and financial allocation would be made during the budget. The task force would be asked to submit its report as soon as possible and the cooperation of the universities and scientific bodies would be sought in preparing the report, he said.

A similar task force would also be formed for preservation of mangrove trees, which are gradually disappearing in other States except in West Bengal. The mangrove trees protect the coast and act as a cover for conservation of ecological system, the Minister said.

Mr. Singh expressed concern that 3,000 species of plants in the country were in danger caused by ill-effects of pollution and reckless felling of trees. Of them the condition of 1,500 species was "critical". The only remedy was

conservation of forests.

Reduction in forest area: He regretted that the country's forest area had reduced to 12 to 13 per cent from 22.5 per cent. Such destruction was because of people's need for firewood, encroachments on forest lands for cultivation and utilisation of forest products for industrial and other purposes.

Stressing the need for massive "social forestry system", Mr. Singh said Gujarat led other States in this system and West Bengal received loan from international financial institutions.

The Centre was contemplating to grant special incentives to shift industries from the congested metropolitan cities to other places.

In reply to a question, Mr. Singh said there was as such no law banning setting up of any medium and large-scale industry in congested metropolitan cities, but the industries department always consulted the environment department before issuing a licence.

He said legislation would be brought before the next session of Parliament to deal with the offences for air pollution. — PTI.

CSO: 5000/7029

STUDY NOTES DANGERS TO INDIA FROM DEFORESTATION

New Delhi PATRIOT in English 6 Jan 83 p 5

[Text]

If denudation to forests continues at the present rate and massive reafforestation is not started soon, India will have no forests by the end of the century, according to a new study, 'Forests farming-prosperity for India', reports UNI.

The study, published in a book, is co-authored by J Sholto Douglas, Robert de J Hart and G Shankar Ranganathan.

In a special chapter on Agro-forestry, Mr Ranganathan says that if denudation continues as at present, good agricultural land will be ruined, as happened in the case of what are today the deserts of the Sahara, Mesopotamia and the Indus valley, and millions of people will die of starvation.

Although published statistics indicate that 22 per cent of India's total land area is forested, the actual area under forest cover is very much less, possibly not more than ten per cent of the total.

In the last 50 years, the area of land that has been stripped of forest cover, cultivated for a few years and then abandoned, amounts to nearly 90 million hectares, Mr Ranganathan says.

EROSION

Because of loss of forests cover, erosion is rampant. Dr M S Swaminathan, former director general of the Indian Council of Agricultural Research, had

estimated that 6000 million tonnes of topsoil were washed or blown away every year. Considering that the most valuable layer of cultivable soil is the top seven inches, this represents a loss of six million acres of cultivable land every year. Related to food crops, it represents a loss of Rs 3000 million.

Besides, floods are too frequent as a result of deforestation. The loss of property alone due to floods in the last 25 years has amounted to over Rs 22,000 million. Further, siltation of large reservoirs reduces their effective life to a fraction of what was estimated at the time they were built.

When the Bhakra dam was built, it had an estimated life of 88 years, now it is reduced to 47. Nearly Rs 50,000 million has been spent on large dams over the last 25 years. At least half of this expenditure must be regarded as lost, according to Mr Ranganathan.

Considering all this, he urges giving national priority to reafforestation and good land management.

Mr Ranganathan also calls for giving top priority to raising fuel wood plantation rather than to drilling for oil. It is certainly possible to substitute wood for oil as fuel for domestic and industrial use. Even in US the World Watch Institute announced that wood as a source

of energy had overtaken nuclear power, and was expected to provide 20 per cent of the country's total needs by 2000 AD.

India relies heavily on tradition fuels. Firewood and cattle dung meet up to 80 per cent of the fuel needs of rural India. It has been estimated that if all the dung were returned to the soil as manure instead of being burnt as fuel, 91 million hectares of farmland could be fertilized and an additional Rs 3,600 million worth of food produced.

As regards firewood, over 250 million cubic metres is removed as fuel per year, which is more than 20 times the volume of timber extracted, and vastly exceeds the annual growth of wood in the country's forests, the author says adding that solution must be found to this serious problem of denudation.

Mr Ranganathan says if even half of India's wastelands, which amount to 90 million hectares, were managed to produce fuelwood, the production from them at ten cubic metres per hectare would be worth over Rs 200,000 million annually.

Referring to work on "generator-gas" or "producer-gas" produced from wood or charcoal, he says it is receiving serious attention from designers of gas generators and internal combustion engines. If India took it up seriously it could well be in the forefront of different countries in this technology.

DETERIORATION NOTED IN TEL AVIV AIR QUALITY

Tel Aviv HA'ARETZ in Hebrew 13 Dec 82 p 6

[Article by Eli El'ad: "Deterioration in Air Quality in November"]

[Text] In November there was a deterioration in air quality as compared to the previous month, according to a report by the Service to Protect the Quality of the Environment.

This is a seasonal phenomenon, explained principally by meteorological factors. During the winter, the atmosphere close to the earth is more stable on most of the days of the month, which causes high concentrations of pollutants, especially at night. This was recorded in the first week of November, the third week, and at the end of the month, at which times there were relatively high concentrations of pollutants.

Another phenomenon which causes deterioration in air quality is the dust storms which blow before the "cold front" and bring dust from the deserts of Africa. An example is the dust storm of 19-20 November, resulting in concentrations of dust in most places above the maximum standard, for 24 hours.

Another possible reason for the decline in air quality in November is the beginning of the home heating season, which contributes to increased pollution of the air with gases such as nitrogen oxide and carbon dioxide. Such an increase in these gases was particularly apparent in Jerusalem.

In November, the mobile monitoring station was operated in the region of the Reading Power station in north Tel Aviv. From the data recorded it appears that the quality of air in that area is mediocre to bad. This is because of high concentrations of pollutants reaching almost half of the daily standard (for 24 hours, which is the absolute standard.). This data indicates that in north Tel Aviv there are high and relatively constant pollutants, and that this is not an exception but a regular condition. Pollutants noted were sulfur dioxide, nitrogen oxide, carbon dioxide, ozone, and dust -- all of which reached high levels.

From the data of the monitoring station operated by the electric company in the region of Haifa, especially in the area of Neve She'an, we see that there was a sharp increase in the month of October (as compared to September) in the number of violations of the standard for concentrations of sulfur dioxide.

In September, the monitoring station at Neve She'anana measured five deviations from the standard for sulphur dioxide to 99 percent of the standard, and the number of deviations in October rose to 22 (in October of last year there were 11 deviations).

It is to be noted that even in the neighborhood of Kiryat Eliezer there were three deviations in October.

In contrast, there occurred in October a decline in the number of deviations for the pollutant sulfur dioxide measured at the monitoring stations of the electric company in the region of Ashdod (in comparison to September). At the Kerem-Diyavne station in October there were recorded seven deviations, compared to 17 in September, while at Nir Galim in October there were no recorded deviations, compared to ten in September.

7075
CSO: 5000

BRIEFS

CONTINUING WATER PROBLEMS -- The Israeli water system is suffering from a cumulative hydrological deficit of 1.5 billion cubic meters of water. Even if rain fell in sufficient quantities, the deficit would persist, unless the rainfall exceeded the annual average, which occurred two years ago. This was stated by Mordekhai Yabobowitz, spokesman for Mekorot, in a lecture at a training course for field workers of Shaham (a subsidiary of Mekorot). The lecturer noted that the water system in Israel is short of rain. He said that the month of December passed with almost no rain. The water table of the Sea of Galilee is still low by two meters as compared to the level this past spring. Today the water table is minus 211.70 meters, and all of the artificial ponds are still empty. Because of the lack of rain, Mekorot is unable to pump a water surplus underground to enrich the aquifer. [Text] [Tel Aviv HATZOFE in Hebrew 30 Dec 82 p 4] 7075

RAINFALL RESEARCH -- Advanced research, the goal of which is to increase the rate of rainfall in the country and the region by exploiting physical processes occurring in the ocean, is being conducted by scientists of the Corporation for Sea and Lake Research in collaboration with the University of Tel Aviv, using the idea developed by Dr Gad Asaf of Solmat Co. The director of the company, Prof Kolat Tsreuia, told this reporter that the research is based on the idea of Dr Asaf that there is a correlation between the heat of the ocean and the quantity of atmospheric rain, which results from the evaporation of sea water. It should therefore be possible to predict the amount of rainfall in the winter by measuring the temperature of the ocean at the end of the summer. Dr Asaf proposes to raise the temperature of the sea and thus increase evaporation, which will lead to greater amounts of rainfall. Increasing the temperature might be accomplished by mixing water from various levels. Prof Kolat Tseruia noted that there is no need for enormous amounts of energy for the mixing process, because it is possible to accomplish it by utilizing the density differences of water at various levels, and perhaps also by using the energy of waves. Prof Tseruia said that if we succeed in increasing the rainfall in the country and the region by 10 percent, we will effect substantial changes in the economy. [Text] [Tel Aviv DAVAR in Hebrew 12 Dec 82 p 4] 7075

7075
CSO: 5000

HARMATTAN BRINGS DRAMATIC CHANGES IN WEATHER

London WEST AFRICA in English 7 Feb 83 pp 311-312

[Matchet's Diary]

[Text] Heavy Harmattan

You cannot ignore the harmattan this year. In Lagos I found the drop in humidity dramatic, and people were complaining of the cold. According to newspapers, ten people died of cold in Jos, and internal and coastal air traffic has been seriously disrupted by poor visibility. President Mitterrand's arrival in Cotonou from Lomé was delayed by a heavy mid-day mist at Cotonou airport, and we even found it in Libreville, where it had not been experienced, said some, for twenty-five years. The most striking visual impact was on the ceremony where President Mitterrand laid a wreath on the Martyrs' tomb in Cotonou, where the mists swirling up from the palm trees turned the sun to blood orange as the last post rang out in the silence of Sunday morning. You also feel harmattan physically after a time, as the nostrils dry out, and the pharynx starts to tickle from the fine dust. The phenomenon of harmattan, although well established in history and folk memory, seems to be getting worse on the coast — a by-product of the alarming process of "desertification" of the zones around the Sahara, concentrated especially in the Libyan desert, blows from Novem-

ber to February (dust from these deserts has been found as far away as the Caribbean).

A recent feature in *Agence France Presse* says that what is worrying ecologists is that the combination of the falls in humidity (sometimes from as much as 95 per cent to 50 per cent) plus the screen of dust and dry mists that the harmattan brings are bringing a decline in the temperature of the soil during the period that it operates, with the resultant decline in rainfall, especially on that stretch of the Gulf of Guinea which includes Ghana, Togo and Benin, which historically has a lighter rainfall anyway than other parts of the coast. In this area the small rains in the winter have virtually disappeared. In the rural areas there has been for some time an awareness of a drying out of the climate, and of sources of water (which has had serious effects on the growth of crops like coffee and cocoa). Trees normally found in the Sahel, such as the *karite* or the baobab are now increasingly to be found near the coast, says the article. Are we witnessing the "Sahelisation" of the coast?

INTER-AFRICAN AFFAIRS

BRIEFS

WATER COOPERATION AGREEMENT--Pretoria, 17 Feb (AFP)--South Africa, Mozambique and Swaziland have established a Tripartite Permanent Technical Committee (TPTC) to cooperate on matters "affecting the joint utilization of the waters from the common rivers," the Department of Environment Affairs said in a brief announcement in Pretoria today. One of the tasks of the TPTC would be to recommend measures to alleviate short-term water shortages in common rivers, the department said. [Text] [AB171808 Paris AFP in English 1736 GMT 17 Feb 83]

CSO: 5000/97

INTERVIEW WITH NJIENSI OUAKAM ON CAMEROONIAN ENVIRONMENT

Yaounde CAMEROON TRIBUNE in French 22 Jan 83 pp 8-9

[Interview with Njiensi Ouakam, permanent secretary of the National Committee on Man and the Biosphere, by Datchoua Soupa; date and place not given]

[Text] A national environment week has been going on in our country since last Monday [17 January]. It ends tomorrow and will have featured activities designed to sensitize public opinion to the problems of the environment and the need to protect it against the danger of destruction. Camnews [title of a series in CAMEROON TRIBUNE] brings things up to date with the permanent secretary of the National Committee on Man and the Biosphere, Njiensi Ouakam and points out the efforts made by the government to secure a better framework for the development of our people.

[Camnews] Why does environment week seem necessary to you and what importance do you attach to it?

[Njiensi Ouakam--NO] National environment week has a dual objective. It was organized in response to a resolution adopted at the Eighth Session of the Administrative Council of the United Nations Program for the Environment [UNPE]. The resolution recommended holding events in the course of 1982 to commemorate the 10th anniversary of the Stockholm Conference on the Environment, similar to those held in June, 1972. In this context in May, 1982, an extraordinary session of the Administrative Council of the UNPE was held in Nairobi, in the course of which a summary was prepared on the last 10 years of activity in this connection and new directions were approved for the period up to the year 2000. On the same occasion the UNPE asked the various member states to hold meetings commemorating the 10th anniversary of the organization. This commemorative week was to have been held last December, but it was postponed until now.

At the Cameroonian national level this desire to protect the environment fits in with the constant concern of the government to improve the surrounding and quality of life of our people even further (in terms of the

soil, plant cover, fauna, water, food, housing, air). In short, everything which constitutes the elements of the environment which have been generously granted us by providence. These factors of the environment are considered so natural by man that he no longer takes into account the changes in the natural balance--very often harmful to him--which he may cause by his own actions. For it must be said that the world is a precious natural balance of things in which the slightest change, either because of natural catastrophes (earthquakes, floods, cyclones, volcanic eruptions, drought, etc) or because of the activities of man (deforestation, pollution, illegal hunting or fishing, wars, etc), even though it may be considered insignificant or only slightly out of control, may constitute a danger for the survival of humanity.

The Cameroonian government very early saw these risks and began to implement a dynamic policy of national development, public works, and an educational system suitable to the aspirations of our country. In this way the Fifth National Development Plan devotes considerable attention to the problems of the environment, particularly with regard to studies aimed at developing a better understanding of our surroundings, as a prior step to development activity as well as to providing information and education to the citizen and to the members of the Cameroonian National Union.

[Camnews] How are the problems of the environment in Cameroon posed and how has the MAB [National Committee on Man and the Biosphere] tried to develop satisfactory solutions?

[NO] Environmental problems are extremely varied and take many forms. In Cameroon there are about 10 or so government ministries which have jurisdiction over this area. There are general problems which go beyond national borders. That is why many of them are not specifically Cameroonian problems. Among the problems from which we suffer the most is, first of all, the problem of water. Cameroon is rich in water, but the supply of water is unequally divided throughout the country, which leaves some regions flooded while others suffer from drought. Moreover, this follows the geography of Cameroon which, to some extent, reflects the situation affecting all of Africa.

The problem of water has worsened to the extent that the population of Cameroon has increased and the cities have grown in number and expanded in size. The people have become more and more critical about the quality of water. It should be said that the problem of water also comes up in terms of our livestock. That is why there is a water program for our livestock. That is why there is a water program for our livestock and even a program to develop water holes in the national parks for our wild animals, which are particularly numerous.

Cameroon also suffers from drought, as the northern party of the country is located in what we call the "semi-arid zone." You know the phenomenon of desertification, whose effects have already been felt in the southern part of the country. Not only is it necessary to take vigorous action to

strengthen the struggle against drought but we must prevent the expansion of the desert toward the south. The "Green Sahel" project, which has had great success in this area, consists of reforestation, development of water sources, and the control of settlement.

Our forest heritage is a subject of concern because in the whole world there are no more than three extensive tropical forest areas: the Amazonian, the African, and the Asian. Now the tropical forests of this capital are subject at present to various changes, including particularly anarchic industrial exploitation, the introduction of agricultural, and animal husbandry in forested areas. The exploitation of the forests must take into account the time needed for the regeneration of the trees.

The fourth major problem concerns pollution, which is a very sensitive matter, particularly in urban areas and in the seas. A recommendation of the Fifth National Development Plan asks the DGRST [Directorate General of Scientific and Technical Research] to work with the Ministry of National Education and the Ministry of Information and Culture to develop a system for the information and education of the people in the framework of the fight against pollution. These contacts are now under way.

In the urban area the problem of pollution comes up in terms of roads, of the industries which emit pollutants and noise, etc. At sea it is a matter of suspended or solid pollutants dumped into the sea by the rivers coming from the continent, from the offshore exploitation of petroleum resources, and from refuse dumped into the high seas by ships.

Regarding our fauna, the problem which has come up concerns the species which are disappearing. This is why tourist development and illegal hunting and fishing, if they are not controlled, threaten to diminish our animal genetic resources.

If we may now consider the housing sector, I can tell you that the most worrisome problem is not the lack of overall plans for housing people but rather control of the implementation of these plans. For example, I would mention in terms of self-constructed housing the problem of non-respect for permanent construction standards. We should also raise the problem of maintaining a national, original form of architecture, using local construction materials as much as possible.

In terms of the urban atmosphere, noise has become familiar to city residents to such a point that they have become accustomed to it, although it is a danger to public health.

It is well understood that all action to be taken in the framework of protection of the environment is aimed at the well-being of man and of society, and therefore more specifically at an improved state of health of the individual. You know that certain transmittable diseases (malaria, for example) are an important factor in the environment.

[Camnews] Does the National Committee on Man and the Biosphere (MAB) have sufficient resources to ensure the protection of the environment in Cameroon?

[NO] UP to now we have emphasized the political will of the government to protect the environment of Cameroon. This will is supported by a logistical will: that is, the establishment of appropriate institutions and the provision of material and financial resources within our means and in terms of our possibilities. Thus, the Ministries of Housing and Town Planning; of Mines and Energy; of Health; of Agriculture; of Animal Husbandry; the General Delegation of Tourism; the National Office of Cameroonian Ports; the merchant marine; the Navy; the national meteorological service--these are national institutions whose jurisdiction covers all or part of the environment.

Specific projects for the improvement of the national environment have been developed and carried out by these administrative bodies.

Regarding the MAB, a young organization established in 1977 and placed under the supervision of the Directorate General of Scientific and Technical Research, its mission is first of all to promote and encourage study and research on the environment. In this framework we develop projects which we submit for government approval for both domestic and external financing. The second mission of the MAB concerns information and education on the environment. The third mission, which does not concern the MAB only, is to contribute to the harmonization and strengthening of regulations for the protection of the surroundings in which we live.

That is a very large area which a single organization cannot pretend to cover. That is why we have been assigned the task of playing a coordinating role between the appropriate national administrative bodies to facilitate concerted action and the exchange of information. We also serve as a liaison office between Cameroonian administrative bodies and international organizations concerned with the environment, such as the UNPE and UNESCO.

I must say that, still talking about resources, the MAB has a budget suitable for the financing of research and studies within the universities and the DGRST when they involve an environmental interest.

We also have a rather substantial library and audiovisual equipment for the information and education of the people on the environment.

5170

CSO: 5000/91

SOUTH AFRICA

DROUGHT CAUSES HEAVY LOSSES NATIONWIDE

MB231214 Johannesburg Domestic Service in English 0500 GMT 23 Feb 83

[Text] The ravages of the virtually countrywide drought are causing daily agricultural losses amounting to millions of rand, and there is now great concern in farming circles over prospects for the coming winter months even if rain starts soon. This emerges from a survey of drought conditions conducted by our regional news desk.

The chairman of the Free State Agricultural Union, (Jan Van Vuuren), says about 70 percent of summer crops have already been lost. Daily, most farmers are losing crops valued at 10 million rand and agricultural experts in the province are describing the situation as an economic disaster.

In Natal, where crop forecasts were reasonable, there are now general crop failures. The deputy minister of agriculture for Ciskei, Mr V.H. (Mafanye), says the maize crop in his country is a total failure. The general manager of the National Maize Producers Organization, Dr Piet Gous, says there will be no question of maize exports this year. In fact if the drought continues, imports are possible. In Pretoria, the maize board has said that it will close its marketing year in April with a deficit of more than 220 million rand on its commercial account, and it has also said that it is essential that a more market-oriented economic system be applied as soon as possible.

In the meat industry, the drought has already cost farmers millions of rand. Cattle are dying every day in the northern transvaal and venda, and more than 100,000 head of cattle have already been lost in the national states. In the northern and eastern transvaal, cattle prices at auctions are way down on last year's, and farmers are being forced to sell stock because of a lack of grazing. The same situation exists in the free state and the eastern cape, with farmers selling off their stock and meat markets, therefore, being oversupplied.

The wool board has said that the effects of the drought can already be clearly felt in the wool market. However, these effects will be worse felt later this season and next season. The cotton board has said it is concerned about the industry because a large number of producers have already been forced out. The deciduous fruit board is expecting a much smaller

harvest this year, and apples will be particularly hard-hit. The chicory industry expects this year's crop to be almost half last year's.

Good news is that the wheat board has announced a record crop of 2.4 million tons this season, more than the country needs for its own consumption. The dairy board is also optimistic, describing the industry as healthy although there could be shortages later this year.

The minister of agriculture, Mr H. Vensel, visits the north and north-western cape today to gather information on the drought in those areas.

CSO: 5000/102

BRIEFS

ARMY AID--Farmers in drought-stricken areas can apply for the use of Defence Force land allocated for emergency grazing. All the land which the SADF can make available has been identified, the Minister of Defence, General Magnus Malan, announced in Cape Town on Monday. The South African Agricultural Union has been told the size and location of areas which are available, said General Malan. Farmers will not be allowed to contact the Defence Force individually, but will have to make their approach through the union, which will allocate land in co-operation and consultation with the SADF. Application should be made through the district agricultural union or farmers' association, stating all relevant particulars such as the herd size, size of the breeding herd and the number of stock for which grazing is needed. The local unions and associations will allocate the grazing and be responsible for the general management and administration of the scheme. Combined committees will be appointed where more than one area's union or association wants to use the land allocated. This will be done through the relevant provincial union, which will take over the administration of the scheme. [Text] [Johannesburg THE STAR in English 27 Jan 83 p 16M]

SIMULATED RAINFALL PROJECT--A SCIENTIFIC rainfall stimulation research project has been initiated by the Water Research Commission in the Nelspruit area of the Eastern Transvaal. The commission said in Pretoria yesterday the project--designed to determine whether potential existed for rainfall stimulation in the area--would run for four years. It is intended that a detailed study of rain producing clouds should be carried out to determine how the clouds could best be treated to increase the rainfall. The four-year research programme is regarded as the first phase of a long-term research programme that could take as long as 15 to 20 years. The commission said it may take many years of research before the technology for rainfall stimulation had been refined to a stage where it could be applied in an operational project involving area-wide seeding of clouds. "If the first phase indicates that potential exists for rainfall stimulation, then it may be possible to design a fully random experiment for Phase 2 of the programme in which the effectiveness of the technology developed in Phase 1 can be tested and evaluated in terms of the change in rainfall and the effects that this would have on stream runoff, ground water and soil moisture," the commission said. The Water Research Commission said South Africa was a country suffering from scarcity of water. It had been estimated that water demand for the country will exceed the total available supply by about the year 2020 and the quality of the water was rapidly

deteriorating as a result of increased usage and resultant pollution. The commission added that urgent research on possible alternative sources of water supply was needed and rainfall stimulation represented one of the few alternatives that might provide more water without adding dissolved salts that had to be removed. [Text] [Johannesburg RAND DAILY MAIL in English 29 Jan 83 p 2]

ESCOM WATER SUPPLIES--The drought hitting many areas of South Africa has forced Escom to take steps to guarantee water supplies to its power stations' cooling systems. An Escom spokesman said it was taking the water shortage into consideration, and at least two power stations have already had their cooling systems switched to other regions. "The drought has forced us to switch our Komati and Usutu systems to the Vaal supply systems," he said. There was no problems with water in the Vaal region at present, so Escom can switch over to the systems there if the situation became critical in other regions. The spokesman said Escom could also curtail power supplies from some stations to save water. "Because the demand for electricity at this time of the year is not very high, we can always generate less power from a station in an affected area. We would thus be using less water. Often people don't realise that electricity and water go together. That's why saving water is important to us." A power station with the capacity to supply electricity to three cities the size of Johannesburg would have to use 150 million litres of water a day. Last year Escom used 226 000 million litres of water in its power stations--an average of 730 million litres a day. This means that it would need 2,4 litres of water and 0,5 kg of coal to burn a 100 watt light for 10 hours in a home. Escom however, uses only 1,8 percent of the total water consumed in the country. The biggest consumer is irrigation, which uses 72,8 percent. The spokesman said that, using the latest technology, Escom was trying to reduce the amount of water it uses in power stations. "Ten years ago we were using double the amount," he said. [Text] [Johannesburg THE STAR in English 2 Feb 83 p 3M]

DROUGHT HITS GRAZING--DURBAN--The Biyala Farmers' Association in northern Zululand has decided to ask the Government to declare the area a grazing-stricken lot. A spokesman for the association said yesterday the continuous drought and scorching heat were playing havoc with grazing. Most farmers now had no grazing left, although cattle were still in a fairly satisfactory condition. The situation had also eased slightly because the State had made available 4 000 hectares of grazing bordering on the Biyala area. The two major dams which supply Durban and Pietermaritzburg are also being affected by the heat. In spite of water restrictions which have now been in force in the Pietermaritzburg area for three weeks and in the Durban area for a week, the levels of the Albert Falls Dam and the Midmar Dam are dropping. A spokesman for the Water Board said yesterday the situation was causing concern. He said it appeared the water restrictions had not eased the shortage. At Mtunzini, Zululand, it was decided yesterday to ban the use of hosepipes and sprinklers. Gardens may be watered with buckets or watering cans only, between 5 pm and 6 pm daily. [Text] [Johannesburg THE CITIZEN in English 8 Feb 83 p 13]

SPREAD OF POISONOUS SESBANIA PLANT REPORTED

Mbabane THE TIMES OF SWAZILAND in English 25 Jan 83 pp 1, 16

[Article by Mashumi Twala]

[Text]

**A DANGEROUS
US poisonous
plant is spread-
ing like wild-
fire in Swazi-
land**

And a botanist has warned the public: "Beware, it's a killer."

The plant, called Sesbania, can kill people and livestock and as a weed, chokes all the other vegetation near it.

Although it is new in the country, the plant is growing "at an alarming speed and increasing the danger to everybody."

The curator of the National Herbarium, Mr. Gideon Dlamini, said: "An immediate campaign is needed to wipe out this plant. I intend to make representation to government to declare it a noxious plant in the country. Members of the public must be made aware of the dangers it poses."

"Everyone who knows it and sees it should pull it out, not cut it because it will grow again."

The menace of the plant came to light when a

reader sent The Times a letter highlighting the danger posed by the plant.

The reader, Mrs. J. Smithyman, of Mbabane, described the plant as "a small tree with delicate foliage and beautiful clusters of orange flowers, which have just finished flowering."

She emphasised: "Every year that the Sesbania is left unchecked will mean a bigger and more expensive problem for the future."

Hazardous

Mr. Dlamini explained: "The plant is particularly hazardous to livestock, in view of its rapid increase. While it has been concentrated mainly on riverbanks, it has suddenly spread all over the countryside and into homesteads."

"Because it can grow in almost any type of soil, it has sprung up in places where there is not even water."

"The plant originally comes from America, where it has been declared a noxious weed after it has been killing cattle, goats and sheep."

"We are worried that since it has spread into

homesteads and people are keeping it as a beautiful flower, it poses dangers to children, who can pluck it and eat it."

"It is so strong and grows so fast, that it will make the task of eradicating it a very big one."

"No sooner does it flower than more seeds burst and fall back onto the ground. Gradually it dominates the entire area where it is growing at the expense of all the indig-

enous and valuable vegetation."

Mr. Dlamini said everyone should concern themselves with this plant. He pointed out that eradicating it will take a while because it had already grown extensively.

He said: "We need the

full support of government for this. The plant needs to be pulled out while it is still young because it has problems once it has grown."

"Once left unchecked, it will even add to our current problems of drought because it drains all the vital water."

MBERENGWA, ZVISHAVANE HIT HARDEST BY DROUGHT

Harare THE HERALD in English 24 Jan 83 p 7

[Text]

WITH more than 1 000 head of cattle reported dead within a fortnight, the Zvishavane and Mberengwa districts have become the worst drought-hit areas in the Midlands.

According to reports submitted to the Midlands provincial Agritex office here, the situation in the southern part of the province is critical, while that in the northern part is a little better with cotton still promising to make it.

In the Zvishavane-Mberengwa region, at the weekend there had been no rains since early December. Temperatures are high and most of the crops are a write-off.

There is very little grazing and virtually all dams in the region have dried up, including the largest, Mabwematema, in Zvishavane.

Msume hospital and mission had to close because of lack of water.

In the Chivhu district there has been very little rain. Most crops are at a "permanent wilting point". Grazing is poor and is deteriorating.

The Sanyati region, which covers Copper Queen, Chenjiri, the Sa-

nyati Communal Area and the Sebungwe and Ganda-varoyi areas of Gokwe, had effective rainfall during last week.

In the Takawira region, which covers Chilizanazi, Mvuma and the Tokwe resettlement scheme, crops have been affected in the whole region except at the resettlement scheme.

Most of the crops in the Gweru region, which covers the commercial farms, Lower Gweru, Chiundura and Shurugwi, are a write-off.

In the Kwekwe region covering Zhombe, Silobela and the commercial area, rainfall was recorded last week, the highest recording being 65 mm. But most crops were already a write-off and livestock is in a fair to good condition.

● Ziwa reports that the Gwanda District Administrator, Cde Godwin Gumbo, has appealed to people in the communal lands to start selling their cattle as the number of deaths is likely to rise.

VIOLENT STORMS HIT KALININGRAD, LENINGRAD

Floods, Winds in Kaliningrad

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 22 Jan 83 p 4

[Article by G. Furman: "After the Storm"]

[Text] It will be a long time before Kaliningrad's youngest citizens, born on the night of 18-19 January, will learn what an anxious night that was.

The storm warning came in the day before. The disaster control staffs went into action immediately. The cyclone caught no one unawares, but what did happen surpassed all expectations.

Wind gusts, which were strong in the morning, reached a speed of 36 meters per second by evening. The level of the Pregol' River rose sharply, and water rushed toward enterprises on the waterfront. The territory of a rail car building plant, a milling combine, ship repair and some other enterprises was already flooded. Water penetrated into the coke and gas plant. It had to be kept from reaching the flues, where the temperature reaches up to 300°; otherwise an explosion would be possible. An attempt was made to build a dike, but there was not enough time. The furnaces had to be shut down.

The most critical period began after 2000 hours, when the water reached a record level--183 centimeters above normal. This had never happened before.

The city disaster control staff, created under the Kaliningrad City Executive Committee, organized assistance wherever it was needed the most. Soldiers were called in for the work. For example, they used amphibious cross-country vehicles to convey enterprise workers cut off by the water. And the volume of this unusual traffic was sizable--about 2,000 persons.

The hurricane toppled trees, broke power lines and ripped the roofs off houses. But the people met the elements with organization, will and courage. Despite the terrible winds they restored the electric power lines and cleared obstructions from the roads. When Kaliningrad Obstetric Hospital No 5 found itself without heat and light, other obstetric hospitals took in the infants and mothers. In Zelenogradsk, Baltic waves flooded the streets, and children of a boarding school had to be subjected to emergency evacuation.

Things were especially tense at the ports of Kaliningrad--the marine fishing, the merchant marine and the river ports, where the vessels had to be kept secure on their moorings.

It would be difficult to enumerate all that was done on this stormy night in Kaliningrad and in the cities and rayons of the oblast.

"Kaliningrad's citizens were well organized, and they behaved selflessly during the natural disaster--and they emerged the victors from this fight," said Kaliningrad City CPSU Committee First Secretary M. P. Netroba.

Now an extensive effort is being made to clean up after the hurricane under the guidance of party and soviet organizations. Electric power lines have been completely restored in Kaliningrad. The coke and gas plant is already back at work. Urban transportation is operating without interruptions. Vehicles carrying fresh bread are driving through the city's streets--the laborers of the milling combine would not allow a single sack of flour to be lost. The schools are back in session, and youngsters have returned to the nursery and day schools. And in the evening, as usual, the doors of the movie theaters and the palaces of culture open wide.

Flood Control in Leningrad

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 23 Jan 83 p 4

[Article: "A Cyclone Attacks"]

[Text] A "diving cyclone"--this is how weathermen described the behavior of an air vortex which causes flooding in Leningrad for the fourth time in the last 2 months.

In ample time, specialists of the local weather bureau transmitted a warning of a possible increase in water level to the city disaster control staff. This made it possible to warn Leningrad's citizens by radio well beforehand.

Gusty storm winds and wet snow caused the water level to rise in the Neva delta. Waves broke over the embankments of Vasil'yevskiy Island, the Petrograd region, the territory of the trading port and other waterfront areas of the city. Leningrad's citizens met the elements with courage and organization. They took all steps to rescue material valuables and to evacuate the public from flooded areas of the city.

11004

CSO: 5000/39

THIRD HURRICANE IN KALININGRAD

PM101501 Moscow IZVESTIYA in Russian 4 Feb 83 Morning Edition p 6

[TASS report: "Combatting the Elements"]

[Text] Kaliningrad Oblast has had two weeks of storms with only brief lulls. The latest hurricane, the third, occurred on 2 February and continued until the next morning.

All three hurricane onslaughts produced winds of 30-40 meters per second and considerable flooding. The water level in the Pregolya River rose more than once to 180cm above normal. Kaliningrad's streets near the sea and the territory of a number of industrial enterprises were inundated. The hurricanes temporarily disrupted power supplies in a number of districts of Kaliningrad and oblast.

There was weather damage on kolkhozes and sovkhoses. In a number of places fodder storage facilities were flooded and livestock raising units were left without electricity.

The hurricanes and weather storms wrought havoc in the Kurshskaya Spit Nature Reserve. Seven waves 5 meters high destroyed defensive installations over a wide area and water swept over the spit.

The Kaliningraders combatted the elements steadfastly and selflessly. Having received advance warning from the experts at the Hydrometeorological Observatory, the collectives of enterprise, kolkhozes and sovkhoses were not caught unawares. At the Freightcar Construction Plant, for example, emergency teams hoisted valuable equipment onto platforms and rapidly erected scaffolding, and electric motors were removed from machine tools. At the No 2 Pupa and Paper Combine and the Flour Milling Combine finished products were saved from the water through the efforts of all the workers. In the seaport area in the evening the water cut off from the city around 1,000 citizens on their way home from work. Troops of the Kaliningrad Garrison with powerful "Ural" trucks came to their aid.

The impact of the hurricanes which swept through kolkhozes and sovkhoses in Bagrationovskiy Rayon was such that one would imagine it would take several

weeks to restore normal activity. Telegraph poles swept away by the wind, trees uprooted and roofs ripped off outbuildings and houses.... Without waiting for the hurricane wind to subside, tractors came out onto the road on the "Borba" sovkhos and machine operators delivered fodder to livestock units. When the dairy complex lost its electricity supply and the machine milking was in danger of disruption tractors were started up to replace electric motors and the vacuum pumps were set in motion. Milking took place at the appointed time. The same happened on other farms. Bagrationovskiy, Pravdinskiy, Slavskiy and other rayons maintained the level of livestock raising output during the period.

CSO: 5000/51

MATROSOV ANSWERS QUESTIONS ON MOSCOW'S WATER SUPPLY SYSTEM

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jan 83 p 4

[Interview with Moscow City Soviet Deputy A. S. Matrosov, chief, Water Supply and Sewer Maintenance Administration, Moscow City Executive Committee, by V. Kharakhinov; date and place not given: "Moscow's Water"]

[Text] Moscow's drinking water is famous for its purity and excellence in our capital and far beyond (every day, after all, about a million visitors come to Moscow from all corners of the country and the world). From where does it come to the capital? What is the status of the Moscow water pipeline, which has a history 178 years long, and what will it be like tomorrow? Moscow City Soviet Deputy A. S. Matrosov, chief of the Moscow City Executive Committee's Water Supply and Sewer Maintenance Administration replied to these questions at the request of a SEL'SKAYA ZHIZN' correspondent.

[Question] We often hear it said that a droplet of water contains a reflection of the world. And we, Aleksandr Sergeyevich, would wish that in your brief discussion you could reflect, figuratively speaking, the entire voluminous and highly complex countenance of the Moscow water pipeline. We can understand of course that this is not an easy thing to do.

[Answer] Yes, it is a hard thing to do. After all, I could talk very long and interestingly about the Moscow water pipeline and its remarkable laborers. Each day our capital consumes about 5.5 million cubic meters of water--an entire river. The length of underground pipelines in Moscow is about the same as the distance from it to Khabarovsk--7,500 kilometers. So that the readers could get an idea of how extensive these arteries are, let me say that the total length of Moscow's streets and boulevards is half the length of the pipes laid beneath them.

Muskovites and guests of the capital drink pure river water--from the Moskva River and the Volga. The former comes through the Rublevskaya and Zapadnaya water pipeline stations, and the latter comes through the Vostochnaya and Severnaya stations. Practically the entire housing pool of the capital is now furnished with water pipelines and sewage systems, and 82 percent of this housing is serviced by a centralized hot water supply system. No city in the world has such a thing.

Concerned for the health of the planet's population--many countries are known to be suffering an acute water shortage--the UN General Assembly declared 1981-1990 to be the "International Decade of Providing Drinking Water and Improving Sanitary Conditions." In response to this resolution, Soviet specialists began developing another--even more-sophisticated!--standard for drinking water. We have in our country a state standard which insures the greatest epidemiological safety of the water, harmlessness of its chemical composition and high organoleptic properties--odor, taste, color. All indicators of the All-Union State Standard are monitored by complex and very precise electronic instruments. The requirements imposed on the quality of water in Moscow are stiffer than they are abroad. As an example they are three times stricter in relation to bacteriological indicators. In a word, Moscow water is irreproachable, and its salt composition is optimum. This is why we always drink fresh water straight from the tap, with absolute trust and pleasure.

[Question] Do deviations from the standard ever occur, and if so, why?

[Answer] No deviations are permissible. The dependability with which water is prepared for use is strictly regulated by Soviet public health. Sometimes it happens that the water may have an ever-so-slight odor, though this does happen rarely. This is associated with excessively abundant reproduction of plankton in the rivers, and with spring runoff from fields. In such cases the water undergoes even stricter processing, and therefore it still remains harmless.

[Question] Please tell us in this connection about the improvements that have been made in the enormous water supply administration and about the modern scientific developments and new technology that have been introduced into its practice.

[Answer] The Moscow water pipeline owes its high level of sophistication to an entire complex of improvements: New mains and networks are developing intensively, and new water regulating and pumping stations have been built. The world's largest facility for ozone treatment of water is operating dependably at the Vostochnaya water pipeline station. This method is highly effective and economical, and it is precisely here that we are learning the most progressive techniques.

This is now the third year that an automated control system has been handling the organizational and economic aspects of our administration. All information on the Moscow water pipeline is concentrated at a central control console. Predictions of water consumption are made here on a weekly, daily and even hourly basis. For example when a popular television film, sports broadcast, concert or other such function is shown, water consumption falls sharply, and when the show ends, consumption immediately rises tremendously. In such cases additional high-output pumps are turned on.

In the next few years we will convert all of Moscow to the automated water supply control system. Computers will take on all of the hard work of the dispatchers. As an example a system of automatic and remote control equipment

that transmits information on the principal operating parameters of the stations and pipelines has already been introduced in Zelenograd, where it is operating successfully. A system that automatically maintains the water pressure has begun working for the first time. A computer controls all operations associated with water supply in Zelenograd! And soon, so it will be everywhere in Moscow.

[Question] Aleksandr Sergeyevich, the readers would very much like to know whose careful hands provide the gift of water to the capital day and night.

[Answer] It is my deep conviction that the people working on the Moscow water pipeline are remarkable. What is unique about our personnel is that most people who come to work with us remain here their entire lives. We have many people who have devoted 40, 50 and even 60 years to the water pipeline. We recently held a veteran's reunion, and to everyone's joy, there was a turnout of more than 2,000 who had worked 25 years and longer.

There are entire dynasties of Moscow water pipeline workers. Take as an example the Yunisov family: Its different representatives have worked a sum total of 237 years at the Rublevskaya station; the Osokin family worked a total of 211 years, and the Babushkin family worked 124 years. We are well familiar with the dynasties of the Zhukov, Losev, Chasovnikov, Barkovskiy, Feysibinov, Vasilenko, Zakharov, Golifenkov, Gordeyev and other families of water pipeline workers-- a glorious segment of Moscow's working class.

Hero of Socialist Labor fitter V. M. Mal'kov, cavaliers of the Order of Lenin fitters I. N. Seregin, A. T. Prudinkov, S. M. Yefimets and V. S. Kiselev and many others who have earned high state awards enjoy the love and respect of their collectives. The Order of the Red Labor Banner, which was awarded to our administration in December 1966, is testimony to the selfless labor of the thousands-strong collective, to labor that is so much needed by our city.

[Question] And from all appearances this labor will become even more important, necessary and brilliant in the future.

[Answer] Without a doubt. Despite the high sophistication of the capital's water supply system, development of hydraulic engineering systems will continue both in the present five-year plan and in subsequent ones. The intention is to make us independent of the whims of nature, including droughts. Take as an example one of the most important facilities, the Rzhev hydraulic power system, which has been included into the master plan for the Moscow water supply system as a priority project. Scientists predict that the quality of its water will be outstanding. The Rzhev hydraulic power system is itself an original engineering complex, and its dam will reach a height of 40 meters. But what is especially important about commissioning the hydraulic power system is that the amount of water flowing through the Canal imeni Moskva will immediately increase by 30 percent.

There is also another important project awaiting initiation. At the moment many enterprises are using drinking water for production needs, consuming it in

considerable amounts--up to 1.3 million cubic meters per day. We will soon begin supplying water to production operations directly from the rivers, and we will begin using treated wastes. Industrial water pipelines are already being built and placed into operation. Thus water intake and pumping stations that will supply water to heat and electric power stations and other enterprises have been built for the first time in Moscow, near Kuntsev and at Klyaz'minskoye Reservoir. In a little while the capital's water pipeline administration will become even more productive and sophisticated.

[Question] What sort of problems and difficulties is your collective encountering because of Moscow's rapid growth, literally before our eyes?

[Answer] The proportions of the water needs of this city of more than 8 million also predetermine the extent of the water conservation measures. As new residential complexes, settlements and industrial and agricultural enterprises appear, the volume of wastes increases as well. It has become much more complex to implement conservation measures, both technically and organizationally. A strict decision was made to reinforce a thrifty attitude toward drinking water sources. The ministries, departments and agricultural organizations were given firm quotas for construction of waste drainage systems, manure storage sites at stockbreeding farms etc. By 1985 the discharge of untreated wastes will have to be halted.

The floods of vacationers on the shores of reservoirs are growing from year to year. We need to think about organizing an extensive public policing service in such zones. And the sooner the better. We face another paradox as well: The quality of drinking water is being sacrificed to the narrow interests of the owners of small vessels. In particular we must prohibit such vessels and motorboats--there are thousands of them!--on Ivan'kovskoye Reservoir as well as on the Volga below Konakov.

On the whole our proposals for protecting and developing the capital's drinking water sources boil down to the following. We need to hasten further reconstruction of the Canal imeni Moskva, increase its water throughput and replenish the waters of Ivan'kovskoye Reservoir. I would hope that the RSFSR Ministry of Public Health and the RSFSR Ministry of Water Economy would intensify sanitation and water quality surveillance. We also asked the RSFSR Council of Ministers to transfer Istrinskoye, Mozhayskoye, Ruzskoye and Ozerninskoye reservoirs to the Moscow water pipeline system and to approve the boundaries of the public health protection zone of the Vazuzskaya hydraulic system. All of this will make it possible to tackle the problems of conserving our priceless wealth--water--prudently and economically.

[Question] I am sure you would like to share some wishes, advice or graphic examples and figures.

[Answer] Of course. Were we to tell one of our dear Muscovites that he needs several dozen liters of water for his morning toilet, he would not believe us right away. But that is the truth. In a minute, enough water will flow

out of a tap to fill a bucket, while it takes 10-20 minutes to brush your teeth, shave and wash. Ask any homemaker if two or three buckets of water would be enough to prepare a meal, and she would say yes. But some home "economists" keep the tap on in the kitchen during their entire cooking time. Or, for example, were we to bring 90 buckets of water to a family of three persons and ask it to use it up within a day, this might seem impossible, but this is precisely the quantity of water that flows from the tap without eliciting concern and alarm.

Were every Muscovite to assume a thrifty attitude toward water, both at home and at work, and were he to economize, as an example, just 10 liters a day--one bucket!--then nine million Muscovites would save 90,000 cubic meters of water. This is the amount used by Moscow suburbs such as Lyubertsy and Balashikha. Moreover each of us has the power to save water. We must preserve our wealth, and treasure it!

We can recall that in capitalist countries, prices on water are high everywhere. In some of these countries, water for drinking and food preparation is now being sold in stores, and once again at extremely steep prices.

[Question] Incidentally, Aleksandr Sergeyevich, how much do Muscovites pay for water? Many would like to know.

[Answer] The rate set by the Moscow City Soviet in 1940 has never been changed--4 kopecks per cubic meter of water. The population of the RSFSR pays the same. Such that the cost has absolutely no impact on the family budget. The same rate applies to cultural, public health, personal service, public food service and administration organizations.

[Question] And finally, is there really a production cost associated with water? The question may come as a surprise, but after all, is water not a gift of nature?

[Answer] Outlays on creating and maintaining hydraulic engineering structures (on their repair, employee wages etc.) are a natural part of the production cost of water. It also includes payment for electric power used by pumps, motors and other mechanisms--about 20 million rubles annually in our water pipeline system. The production cost of a cubic meter of water is now 5.6-5.7 kopecks. As you can see, the sale price to the public and to cultural, public health, personal service and other institutions is below its production cost. We should also mention here that 172 million rubles were spent in the 9th Five-Year Plan to develop the Moscow water pipeline system, and 235 million were spent in the 10th. This we see primarily as a manifestation of the constant concern of our party and the Soviet government.

Let there be clear and clean water in every home! Workers of the Moscow water pipeline system are devoting all of their efforts, experience and proficiency to this end.

11004
CSO: 5000/48

PROGRESS CLAIMED IN ENVIRONMENTAL CLEAN-UP

Moscow SOVIET EXPORT in English No 6, Jun 82 pp 4-6

[Text] Scientific and technological progress and a steady rise in the standard of living generally are having a marked effect on the environment. People are becoming ever better equipped to wrest all they require from nature. As a result, nature is undergoing profound change with negative consequences for it and for man himself. As the scale of industrial activity broadens, the character and extent of its effect on the environment change--the local ones become regional and global, and those that could once be reversed become irreversible.

To protect and improve the environment, to make rational use of biospheric resources and to reproduce them--these problems are always in the focus of the Soviet state's attention. Emphasized by the first Lenin decrees back in the early years of Soviet power, they continue to underlie all the Soviet national economic development programmes.

The Guidelines for the Economic and Social Development of the USSR for 1981-1985 and for the Period Ending in 1990 outlines a vast programme of environmental protection measures, including the improvement of production processes and transport means with a view to reducing their pernicious effect on the environment, as well as measures for a fuller and more rational utilization of natural resources. It is along these lines that industrial progress is being directed in our country.

Circulating water supply systems have been introduced of late at most of the industrial enterprises situated in the European part of the country. Thanks to this, the re-use of water in industry has grown to 65-70%. As a result, over 200,000 million cubic metres of water are saved every year.

The number of enterprises switching to close production cycles and waste-free practices is on the increase, while raw materials are being used more and more comprehensively. For instance, the Ust-Ilimsk Integrated Pulp-and-Paper Mill, one of the country's biggest, produces 500,000 tons of bleached woodpulp a year--plus chipboard, nutrient yeast, turpentine and other things, all processed from production waste.

The nepheline comprehensive utilization process, developed by Soviet scientists, is being introduced at aluminium factories on a wide scale. Previously, most of the nepheline was dumped (which is still the case in many countries); now these enterprises put out, besides aluminium, soda, high-grade cement, potash and other useful products. Cryolite--a mineral essential for the improvement of aluminium quality and the production of glass, ceramics and paints--is now extracted from flue gases.

Many more such examples could be cited. They go to show that comprehensive low-waste or waste-free production processes not only help to protect the environment, but earn extra profit for industrial enterprises.

Special attention is paid in the USSR to the restructuring and development of the fuel and energy complex along the lines of a more rational utilization of resources and reducing its negative effects on the biosphere. The share of atomic and hydroelectric power stations in the power industry is growing: in 1981-1985, these stations will account for 70% of the entire increase in electric power stations' installed capacity. Atomic and hydroelectric power stations will produce 220,000 and 230,000 million kWh of electricity, respectively, which will add up to 30% of the USSR's total.

Our thermal power industry depends to its development chiefly on the construction of large 300, 500, 800 and 1,200 MW units which make fuller use of organic fuel and discharge less pollutants. The efficiency of large thermal power stations' ash traps amounts to 98-99%. Highly efficient devices which reduce the discharge of nitric oxides to a half or even to a third have been developed over the last few years. Under construction now are pilot plants for cleaning flue gases from sulphur oxides and obtaining sulphuric acid, gypsum and fertilizers in the process. The reduction of specific fuel consumption by thermal power stations is important from the angle of environmental protection because the discharge of the products of its combustion decreases accordingly as a result; besides, this means a saving of fuel. At present, Soviet thermal power stations burn an average of 327 grams of fuel equivalent per each kilowatt of power output. This figure, one of the world's lowest as it is, continues to drop.

Plans for an accelerated increase in the extraction of natural gas, one of the purest fuels ecologically, are being successfully carried out in the USSR. By 1985, the annual volume of gas extraction will reach 630,000 million cubic metres. Soviet gasfields employ the latest methods of environmental protection. A case in point is the Orenburg gas complex whose installations are hermetically sealed and whose extraction equipment is highly reliable and corrosion-resistant. Instead of being merely cleaned, gas is comprehensively processed right in the field and, besides the 45,000 million cubic metres of fuel gas a year, the national economy obtains millions of tons of useful products. The same is true of the gas complexes in Siberia and Central Asia. Circulating and re-cycling water supply systems have been installed and are being continuously improved in gas and oilfields. Air coolers making it possible to reduce water consumption by 50-80% have been developed and put into use. Thanks to a circulating water supply, Soviet oilfields' water consumption from external sources was cut by 1,200 million cubic metres in 1981.

A National Environmental Supervision and Control system has been set up and is now efficiently functioning in our country. It uses the observation, research and control facilities of the USSR State Committee for Hydrometeorology and Environmental Protection and of several Ministries--Health, Agriculture, Water Utilization, etc. The system monitors atmospheric, soil, surface- and sea-water pollution at three levels--global, regional and impact (i.e. in the zone immediately exposed to pollution). In particular, stationary air monitoring is conducted from over 1,000 posts in 250 cities, and composite research expeditions work in 50 cities. River monitoring is conducted from 3,200 points on 4,400 range lines; marine monitoring from 1,600 stations; and soil monitoring from 2,700 points. The system employs more than 200 sea-going and river ships fitted out with special equipment. Earth satellites and orbital stations gather important information on the state of the environment.

In the USSR, environmental protection is incorporated in a state law and is regarded by the Soviet state as a matter of vital national and international importance. The USSR is active in international organisations, conferences, symposiums and all major undertakings aimed at protecting the environment on the global scale.

CSO: 5000/50

DIRTY ATMOSPHERE IN NORTHWEST RSFSR AREAS STUDIED

Leningrad LENINGRADSKAYA PRAVDA in Russian 8 Jan 83 p 4

[Article by A. Kuznetsova: "Air From All Districts. . . ."]

[Text] The thin transparent glass of diverse flasks and test tubes, and the precise contours of modern instruments. And unexpectedly--right in the center of the laboratory--a large number of rubber vessels whose forms look like balls. In them are air probes which have been taken from the various corners of the city.

Dozens of different additives are established by the specialists from the Leningrad Center for the Study and Control of Environmental Pollution. It is here that probes from all districts come. They are taken with regard to temperature, air humidity, and wind direction three to four times a day. And they must without fail be analyzed throughout the 24 hours.

The Chemists O. L. Skiba, T. D. Doletskaya, and G. V. Kolmakova work efficiently in the air pollution control laboratory which is headed by L. N. Smirnova. They have mastered new methodologies and carried out analytic work which has provided additional information about the state of the atmosphere.

Studies are carried out here, jointly with the State Motor Vehicle Inspectorate, on the influence of motor vehicle transport on the state of the city's air basin. Streets and squares with the heaviest traffic were selected for the experiment, and account was taken of their traffic intensity at various times of the day, especially during peak hours. The work was conducted under diverse meteorological conditions--during the winter, spring, and fall. The data which has been obtained will make it possible to define a more rational distribution of transport on the main highways.

"Work is being done in our country to study the environment not only in Leningrad," the chief of the center, the Candidate in Geological Sciences V. I. Kuznetsov, says, "but also of Pskov, Novgorod, Smolensk, and Kalinin Oblasts, and Kareliya. Meteorologists and chemists, hydrologists and physicists, and biologists and geographers work in our center. A united network of water and air quality observation points has been created. In our city alone 12 pavilions have been established in which air probes are taken systematically, and this is also done at other posts. There are more than 50 of them. Dozens of stations

control the state of the waters. The same kind of research is being conducted in 17 cities of the oblast and at 30 of its rivers and lakes. The data which is obtained is analyzed and generalized. It helps to develop concrete measures to improve the environment. A number of enterprises which were not able to decrease discharges with harmful substances have been closed. The air has now become cleaner. It has also been possible to stop the growth of pollution in the waters of the Neva and the Neva Gulf.

Sources of discharges which pollute the atmosphere are being registered throughout the entire territory of the Northwest. Information is received at the center which has been collected at biosphere reservation stations which are located in various corners of the country. The data is studied by the workers of the Laboratory of Physical and Chemical Methods of Analysis which is directed by V. Yu. Razdol'skiy.

Modern computers will help the specialists in the various divisions at the center to process the diverse information. The computers are now being set up.

2959

CSO: 5000/37

CLEAN WATER NEEDS STRESSED IN DISCUSSION ON ECOLOGY OF LAKES

Moscow RYBOVODSTVO I RYBOLOVSTVO in Russian No 11, Nov 82 pp 16-17

/Article by G. Osipov and I. Gogolev: "Complex World of the Ecosystem"/

/Text/ A total of 250 fish species are found in the fresh waters of the USSR. Together with other hydrobionts they form an interconnected biological complex--biocenosis--in a reservoir. The environment and its inhabitants constituting the biocenosis form an ecosystem. The editorial board of our journal receives many letters, in which readers ask us to discuss laws governing the complex world of the ecosystem. G. Osipov, senior expert of the USSR State Committee for Science and Technology, and I. Gogolev, senior scientific worker at the All-Union Scientific Research Institute of Water Supply, Sewer Systems, Hydraulic Engineering Structures and Engineering Hydrogeology of the USSR State Committee for Construction Affairs, discuss this today.

Trophic Chains

The lake is a characteristic example of an ecosystem. Its biocenosis is represented by flora and fauna. The former includes plants living on the shore and in water and microalgae. Owing to solar energy they absorb mineral salts and carbon dioxide, synthesizing the phytomass on which the zooplankton--cyclops, water fleas, ostracods and other small organisms pertaining to fauna--feeds. In turn, they serve as food for fish--higher forms of fauna. In a number of lakes fish also consume the phytoplankton and, in general, some are typical phytophaga. Beavers, otters, water birds and so forth feed on fish. Man uses it as food. Trophic (food) chains and links connected with each other are formed in this way. If the phytoplankton disappears in the lake, the zooplankton cannot exist in it. On the whole, a lake or an ecosystem can be compared with a complex plant whose output is a living substance. Man uses mainly fish from it. This "plant" is put into operation by solar energy.

Energy transfer in trophic chains is still evaluated by very approximate schemes. Therefore, the life of reservoirs still remains a secret for modern science to some extent.

Water Composition

Now, however, it is quite clear that the properties of water as the habitat of hydrobionts are important for them.

Natural water is a solution of substances, whose set is determined by the geological, geographic, meteorological and other conditions of a reservoir or a stream. As long ago as the 17th century hydrologists said the following: "Water is the same as the land through which it flows."

Rain water, coming in contact with ground and soil, dissolves mineral and organic substances in itself. It is customary to consider water fresh if the content of dissolved salts in it is less than 1 g/l. Carbonates, sulfates and calcium, magnesium and sodium chlorides are the main ones. Mollusks and crustaceans need calcium for the construction of the shell or the armor and fish, for the construction of the skeleton. Other salts are necessary in the process of metabolism of the organism with the environment.

The quality of natural water is determined by approximately 20 basic indicators, that is, hardness, alkalinity, oxidizability, color, muddiness, transparency and so forth. As a result of the disposal of industrial sewage, chemical compounds of almost all the elements of Mendeleev's periodic system can appear in natural water. Some of them are toxic for hydrobionts. This represents a big danger for fish.

What Do They Breathe?

The concentration of oxygen, which is necessary for breathing, dissolved in water is of great importance for hydrobionts. About 10 ml/l of oxygen is dissolved in fresh water at 0°C and almost one-half of this, at 30°C. The concentration of dissolved oxygen in natural water can serve as an indicator of its contamination with organic admixtures of sewage. The higher at the same temperature the concentration of dissolved oxygen, the less contaminated the water.

In the atmospheric air there is 20 to 30 times more oxygen than in water. Water is saturated with oxygen at rifts and waterfalls, as well as through its release under the effect of sunbeams by algae. Therefore, mass deaths of fish occur in winter, when lakes and ponds are covered with ice.

Different fish need a different degree of saturation of water with dissolved oxygen. It is unlikely that someone will hope to catch a trout or a grayling in a pond. These fish like rivers full of rapids, where water is rich in oxygen and, conversely, carp, tench and crucian carp prefer standing water and withstand a dissolved oxygen concentration of up to 1 ml/l.

Fishermen must take another fact into account. Since the processes of photosynthesis stop at night, the content of dissolved oxygen in pond water reaches the lowest value during predawn hours. The fact that at dawn fish "play," jumping out of water, can be partially connected with this.

The hydrogen indicator of water (pH) is also important. It determines whether the medium is acid, neutral or alkaline. When pH is 7, the medium is neutral, less than 7, acid and more than 7, alkaline. There are medium indicator plants. Where horsetail, sedge and bog moss grow, pH is below 7, that is, the medium is acid. Waterweed and chara (stonewort) indicate that the medium is alkaline.

The "attitude" of fish and other hydrobionts to the water temperature is not without interest for amateur fishermen. Hydrobionts depending on their species can exist in a temperature range from minus 11° (algae freezing in ice) to plus 45°. A number of algae withstand a temperature rise of up to plus 85°, while some bacteria, up to 95.6°. The temperature of natural water ranges from minus 7.75° in salt lakes to plus 96.3° in hot springs.

Since a rise in the water temperature up to a certain value has a positive effect on hydrobionts, in southern rivers the specific composition of fish is more varied than in northern rivers. Whereas in the Ob' and the Northern Dvina there are 30 species of fish, in the Don, the Ural and the Volga, 60 to 70 species and in the Dunay, 90.

Fish Seeks Cleaner Water

Suspended substances--small mechanical particles drawn by the flow of water or not settling at rest for a long time--do not play the last part in the life of the biocenosis. Some of them have food value for water animals and others, for water plants. Suspended substances make water muddy. In polluted nontransparent water sunlight does not penetrate deeply. Therefore, algae develop only in surface layers. A reduction in the population of algae impairs the feed base of phytophagous hydrobionts, lowers the content of oxygen and increases the amount of carbon dioxide dissolved in water, because this metabolism is effected by algae. In clean transparent water algae are found at a big depth. If, however, water is muddy, of the flowering algae primarily duckweed and bladderwort, which do not have a root system and float on the surface, can develop in it. Thus, the degree of water contamination can be judged from the number and composition of algae.

Photosynthesizing bacteria play an important role in the formation of the quality of natural water. Bacterial cells are capable of extracting nutrients from soil, even if they are present in negligibly small concentrations measured in several milligrams per liter. With a vast number of bacteria in water the organic substance is mineralized and, at the same time, food resources are created for invertebrates, for example, infusorians.

Of the total number of organic substances contained in water only 2 to 10 percent are in the form of living organisms and the rest, in a dissolved form. The content of organic substances in water can be characterized by the extent of its oxidizability.

Some organic substances are subject to decomposition by microorganisms and others are not. For example, products not subject to decomposition by microorganisms include petroleum and petroleum products. Floating on the water surface, they form a gasproof film precluding the diffusion of air oxygen in water, lower the surface tension of water and close the respiratory pores of higher plants. Processes occurring with the release of hydrogen sulfide toxic for fish and other aerobic hydrobionts begin in water. In the end the reservoir becomes lifeless.

Fish have a highly developed ability to differentiate the odors of plants and of other water inhabitants and to determine their location in reservoirs and streams. Fresh water predators, for example, such as the catfish, perceive well the smell of their prey--peaceful fish. However, peaceful fish--minnow, crucian carp, gudgeon, dace and others--in turn excellently perceive the smell of predators--catfish, pike and perch.

In general, the ability of fish to smell is amazing. For example, eel smells phenylethyl alcohol in a concentration on the order of 10^{-18} mg/l and crucian carp, nitrobenzene in a concentration of 10^{-11} mg/l. Salmons detect a polypeptide with the aminoacid serine in a concentration of 10^{-9} mg/l and completely stop their migration to rivers where this substance is contained. In order to give an idea of how small this concentration is we will say that, to create it, it is enough to pour only 3 g of the substance into Lake Il'men'.

The abundance in water of nitrogen and phosphorus compounds washed away from fields causes an outbreak of development of blue-green algae of the genus *Microcystis*, *Aphanizomenon* and *Anabena*. This is so-called water "bloom." Dying away, these algae give off toxins deadly for bacteria, invertebrates, fish and water birds.

As a result of investigations maximum permissible concentrations of a number of harmful substances in water have been established. However, they are designed for fish that can swim away from the contaminated zone, but not for the "sessile" species of hydrobionts, which would be more correct.

Rephrasing the popular saying, it can be said that under conditions of contaminated reservoirs "fish seeks cleaner, not deeper, water."

However, the generosity of the blue field is ensured not only by the purity of water. As is well known, hydrobionts, including fish, cannot live in distilled water, because it has no source of energy--an organic substance ensuring the occurrence of the life cycle. Inland reservoirs receive more (in relation to volume) of this substance than seas and oceans, because water washing away the organic substance from the soil of forests, fields and meadows and bringing along suspended substances, part of which are remnants of foliage, grass, wood and so forth, is collected in inland reservoirs. Therefore, despite the fact that inland reservoirs occupy only about 1 percent of the area of the hydrosphere, they give 10 to 15 percent of the world fish catch.

It Is Not Easy To Restore Nature

Interference in the ecological balance of reservoirs can assume different forms. It includes withdrawal of water from them, contamination with sewage and even entry of toxic dust or acid rain through the atmosphere.

A simple can, rusting on the bottom of a reservoir, fully expends all dissolved oxygen from about 3 cubic meters of water. How many such cans and other metal scrap are submerged in our waters!

A liter of petroleum entering a reservoir spills on an area of about 10,000 square meters. A total of 75 percent of the zooplankton perishes when water is pumped through cooling systems of thermal electric power stations, which undermines the feed base of fish.

The actions of some managers are determined by the striving for a short-term advantage: forest, for sawn timber and firewood; swamp soil, for peat; river flood land, for arable land; bed silt, for fertilizers; river sand and gravel, for construction. With such an approach the complex ecosystem ensuring the very existence of the river is destroyed and the blue field grows poorer.

It is not accidental that devotees of nature sound an alarm in critical news articles.

However, it is not easy to reconstruct ruined reservoirs and to disentangle the knot of economic contradictions among power engineers, farmers, livestock breeders, timber procurement officials, river workers, builders, chemists, petroleum workers, metallurgists and fishermen, which is closely interwoven with respect to reservoirs.

The protection and reproduction of fish reserves will require a whole complex of major national economic measures. They include the establishment of prohibited water protection zones, which have now been allocated along the banks of the 1,325 major rivers, 80 lakes and 15 water storage basins. In 1980 the total area of water protection zones was 550,000 square kilometers, which is equal to the territory of such a country as France. The construction of installations for the cleaning of the sewage of industrial enterprises and settlements required big capital investments. During the years of the 10th Five-Year Plan state allocations for these purposes totaled about 7 billion rubles. A total of 150 fishing plants and acclimatization stations annually place in reservoirs 10 to 12 billion fry and larvae of sturgeons, salmons, whitefish, phytophaga and other valuable fish species. Both big and small water resource projects have been placed under the protection of the law. A new regime of amateur and sport fishing has been established. Water intake structures are being equipped with fish protection devices. Ichthyologists and hydrobiologists are developing a technology of intensive commercial fish breeding.

... At one time man changed over from hunting to livestock breeding and, similarly, in time took the same step from fishing to fish breeding. However, the natural reproduction of fish reserves will retain its leading importance for a long time. Therefore, water protection remains a true nationwide concern.

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CSO: 5000/23

RECOMMENDATIONS FOR CLEAN AIR, WATER IN GEORGIAN SSR

Tbilisi ZARYA VOSTOKA 7 Jan 83 p 3

[Article with byline GruzINFORM in the column "International Panorama": "Environmental Protection - A Public Concern" under the heading "Before the Permanent Commission of the GSSR Supreme Soviet"]

[Text] In Georgia, governmental appropriations for environmental protection measures are growing from year to year. If 75 million R was spent for these purposes in the 9th Five-Year Plan, it was twice as much in the 10th Five-Year Plan and this figure will reach 213 million R in the current, 11th Five-Year Plan. The republic's air and water are becoming cleaner and its cities, less noisy. A system of purification installations is expanding. There have been about 250 significant engineering measures for the construction and reconstruction of gas-purification and dust-catching installations at major industrial enterprises in the last three years alone. Construction of bypass highways to route through traffic around Tbilisi and Gagra is planned by the end of the Five-Year Plan.

Much is being done, as was confirmed by members of the GSSR Supreme Soviet's Permanent Commission on Environmental Protection and Rational Utilization of Natural Resources, whose sitting concerned monitoring the fulfillment of the program planned for the 11th Five-Year Plan to cleanse the air and water, build purification installations and lower the noise level in the republic's cities. However, much more remains to be done in order to eliminate existing shortcomings and neglected tasks in this undertaking of importance to the government as a whole. In particular, a high level of air pollution has been found to continue in the republic's industrial centers. The hygienic condition of the Kura, as well as rivers emptying into the Black Sea, has been found unsatisfactory. Purification installations are often put into operation with shortcomings and defects. There are still no operational installations of this type in Sukhumi, while those ahead of them in Gagra, on which construction began five years ago, are only 50% operational.

In the adopted resolution, the commission recommended to the republic's ministries and departments and the ispolkoms of local Soviets of People's Deputies the increasing of efforts to implement the program planned for the current

Five-Year Plan to cleanse the air and water, build purification installations and lower the noise level in the republic's cities. Concrete recommendations were also issued to the Councils of Ministers of the Abkhaz ASSR, the Adzhar ASSR and the GSSR State Committee on Environmental Protection as well as the managers of a number of the republic's major industrial enterprises.

9582

CSO: 5000/40

ACTION ASKED ON DIRTY WATERS OF SVERDLOVSK AREA

Moscow PRAVDA in Russian 20 Jan 83 p 3

[Article by V. Danilov, PRAVDA correspondent: "An Unpaid Debt"]

[Text] The Iset' River is not wide and it is not loquacious. It amazes neither with high waves nor rapid current. It did its work--welcomed a century ago the builders of a plant-city, supplied it with energy, and after giving people everything that it was able to give, it hid among the mass of stones which have risen on its banks.

The river is noteworthy in places: there where it is dressed with granite and adorned with fountains, and where incorrigible enthusiasts throw their lines into the water and patiently wait. But a bite is oh! so rare! The water which has been polluted by plant discharges does not attract the fish.

Such today is the Iset' which once gave life to a large city--polluted and rubbish-laden. But the Sverdlovskites love it even this way, because it is the only one. They love it and they hope that one day its turn will come and it will become clean and powerful. It is not without grounds that they are hoping: it is known to everybody that every year the state spends around 30 million rubles on water protection construction in Sverdlovsk Oblast. Several years ago the oblispolkom adopted a decree in accordance with which in 1985 an end will be put to untreated discharges into the Iset'. The Southern Treatment Installations are being erected for this purpose.

They are hoping, but they are also becoming increasingly anxious: time is going, it is not so long until the appointed time, but no one sees any changes for the better. The river is being polluted and filled with rubbish as before.

Why? In reply to this question you can hear that the funds for the construction of the Southern Installations are being allocated in small doses, and that even these are not always fully utilized: there is no special construction which works exclusively on building environmental protection objects. But is the problem only with the Southern Installations? No. They have to take the household and municipal discharge waters of the city. But the pollution of the river continues, and sometimes it even intensifies because many enterprises continue to dump production wastes in it: the Aramil' Cloth Mill, the Verkh-Iset' Metallurgical Plant, the Ural Compressor Plant, the "Uralkabel'," "Uralmash," and the Sverdlovsk Electric Engine Repair Plant.

Something special has to be said about the latter. Every day it dumps into the Iset' hundreds of cubic meters of liquid whose petroleum products content substantially exceeds the permissible limit. At one time the North Urals Basin Administration for water use regulation and protection demanded of the Ministry of Railways that it stop the pollution of the water. From the Main Administration for Rolling Stock Repairs came the reply: "When the 1978 capital investments plan is made up the Main Administration guarantees the allocation of the necessary funds. . . ." So, guarantees! Nothing better could have been wanted. However, the guarantee turned out to be a "sham one."

The Sverdlovsk gorispolkom sent another letter to Moscow. Again, a reply of enviable concreteness and categoricalness: "The Ministry of Railways guarantees the allocations of funds in 1979. . . ." And again--nothing. The next request to stop polluting the river was sent to the ministry by the Sverdlovsk CPSU gorkom together with the gorispolkom, with the warning that in the event of a failure to do what had long been promised "the question of stopping production will be raised." Finally, in reply to such a serious warning, action followed. But action which again did not guarantee anything: the treatment plants at the electric engine repair plant are being built extremely slowly, and no one knows how many more years the plant intends to pollute the Iset'.

The example is a characteristic one. A number of departments are characterized by a lack of haste in solving the problems of environmental protection. For this reason it is not only the Iset' which is suffering, other rivers in Sverdlovsk Oblast are also suffering. For example, the Chusovaya and Tura. The biggest "contribution" to their pollution is being made by the Sredne-Ural'sk Copper Smelting Plant and the Krasnoural'sk and Kirovgrad Copper Smelting Combines which are under the management of the USSR Ministry of Nonferrous Metallurgy.

However, the blame for the troubles of the Urals' waters should not be put only on the leaders of ministries who are not taking energetic measures for the most rapid construction of water protection objects at their enterprises. The fact is that these objects themselves do not guarantee a decrease in harmful discharges.

Let us take the "Uralsmash" Production Association. Five years have passed since treatment plants were built at one of the Association's members--the Sverdlovsk Drilling and Metallurgical Equipment Plant. And all of these five years they have been idle on account of an easily corrected malfunction. The water protection complex at the flux factory which was put into operation 15 years ago has not operated a single day. It was simply pilfered piece by piece. Not only did the equipment disappear without a trace, but so did the roofs and the walls. Only the foundation was left. Kiss the money good-bye, as they say. But you could also kiss the river Kalinovka and its tributary Pyshmy good-bye.

And the mechanized mine safety equipment plant of the "Uralsmash" Association is little by little destroying the city sewage collector by pumping in it the waste from its nickel plating, cadmium plating, and tin plating vats. Is one

to be surprised after this that the city collector is not coping with its numerous discharges? Where is the guarantee that the Southern Installations which are being built in accordance with an oblispolkom decree and at which biological water treatment is planned will operate normally?

The "Uralmash" regularly pays fines. The inattentiveness of the Association's leaders to environmental protection has been discussed at seven meetings of the permanent deputies' commission of the Ordzhonikidzevskiy raysovet, at six meetings of the rayispolkom, three times in the Sverdlovsk City Committee for People's Control, five times in the permanent deputies' commission of the gorsovet, and frequently in the gorispolkom and gorkom of the CPSU. However, the situation does not change.

In August 1982 the oblast newspaper URAL'SKIY RADOCHIY made a thorough critical analysis of this situation. Also without result. The reply which was received by the newspaper's editors essentially admitted the criticism correct, but it contained a reproach to the newspaper which "for incomprehensible reasons" devoted an article of a negative character to the Association.

One can only be amazed at the "inability to understand" of the General Director Ye. Varnachev. The reasons for the article are completely clear. They consist in the omissions of the leaders of the enterprise which is supposed to be a motto in everything. This idea, incidentally, was expressed by the editors very clearly by calling the article "The Other Side of 'Uralmash'." Indeed, the other. Strikingly unlike the one which is visible to everybody.

"The leaders of the Association simply do not react"--the Sverdlovskite N. Khmelevskiy writes indignantly to PRAVDA. "Nothing affects them. . . ."

And is it true that nothing affects them? For what reason? This question has to be asked of themselves by our party and government agencies.

Probably, it is difficult for the leaders of the celebrated Association to switch their thoughts off from enormous deeds and concerns to the troubles of quiet and narrow little rivers--the Kalinovka, Iset', Pyshmy, and others--which once welcomed the builders of more than one giant of industry. But the little rivers to which these giants are in great debt are awaiting a reply. For they are rivers--not abstract geographical concepts. People live on their banks, and people need them.

2959

CSO: 5000/38

PROTECTING ESTONIAN WATERS FROM CONTAMINANTS

Tallinn SOVETSYAKA ESTONIYA in Russian 26 Dec 82 p 2

[Article by A. Endoya, chief of the Kokhtla-Yarve division of the Tallinn Water Resources Inspectorate: "Let's Bring Water Reservoirs To Life"]

[Text] Man's increasingly intensive economic activity is having a great influence on the environment. This influence is especially palpable in natural water bodies.

On 1 January 1973 the Water Code of the Estonian SSR came into effect. On its basis the dumping of sewage waters into water basins is permitted only in cases when this does not entail an increase in these waters of the quantity of pollutant substances beyond a prescribed norm, and on condition that there is preliminary treatment to the level which is stipulated by the water use and protection agencies.

In order to avoid serious consequences from the pollution of our waters and to improve them, the republic's government adopted a special decree in 1973. It also provided, in particular, for the construction of treatment facilities in Kokhtla-Yarveskiy Rayon with a deep water flow into the Gulf of Finland (at a cost of 12 million rubles).

Most of the planned installations have already begun to operate. Among the water resources objects which were put into operation this year the largest are treatment and neutralization equipment for the sediment waters of a mineral fertilizers plant, and also a grease-catcher with floatation equipment. Work is continuing on the construction of a deep-water drainage, and also a collector for sediment and ash-laden waters, and of pumping stations for the Kokhtla-Yarve Shale-Chemical Production Association. The directing of ash-laden and sedimentation waters into chemical and biological treatment plants will help to eliminate the basic source of the pollution of the Kokhtla and Purtse Rivers. In the opinion of specialists, after these measures are carried out the fish stocks in the lower current of the Purtse River should soon be restored.

The operations of tunnel furnaces were halted at the Kiviylil Shale-Chemical Plant, with the result that the oil and phenol content in its industrial drainage waters has decreased approximately threefold. Oil seepage into the mine has also been eliminated. In 1976 the first stage of the expansion of old treatment plants was completed. A new grease-catcher went into operation which, together

with floatation equipment, has made possible almost the complete removal of oils from the industrial drainage waters. This, in its turn, has permitted the return of the treated waters into the production cycle. There has been a twofold decrease in the amount of drainage waters which are dumped into the Erra River.

In July of this year adjustment operations of the objects of the second stage were begun. In October the republic's longest sewage system (20 kilometers) with a permanent operations mode--the Kiviylä-Pyussi-Kokhtla-Yarve System--went into operation. Preparatory work is being carried out for discharging the drainage waters of the industrial complex in the settlement of Pyussi into this sewage system. The years of pollution of the Erra and Purtse Rivers will come to an end this year.

As a result of the ever-increasing extraction of shale, the amount of water being pumped out of the mines and quarries into open water basins is also inevitably increasing. Faced with the necessity of cleaning the mine waters, the "Estonslanyets" Association built 20 sedimentation basins in which the water is purified from its basic pollutant--suspensions. In a year as much as 150 million cubic meters of water is treated in these sedimentation basins. Water birds have begun to settle in these artificial lakes, and fish have appeared.

In addition to the construction of artificial lakes, a study of mine waters and the development of additional measures to clean them continue. Many small treatment plants have been built in these years in the rural settlements of Kokhtla-Yarveskiy Rayon.

Active work is being done here by the rayon Environmental Protection Commission which directs the environmental protection work of various agencies. The foundation has thus been laid for the planned water protection work which is being carried out in the rayon. The types of small but effective biological treatment plants which have been developed as a result of the joint efforts of the republic's scientists and designers ("VIO," "Oksid," oxidation blocks, and ring canals) have found wide use in the northeast of the republic. More than 30 small treatment plants are already operating in the rayon's farms and settlements. The problem of treating sewage waters and of protecting the small rivers in Voka, Tudulinna, and Kiykla has been completely solved. The settlements of Rannu and Erra and the central farmstead of the "Narva" sovkhoz direct their sewage waters into centralized systems. Treatment plants are now in the construction stage in Yykhvi, and also in Avinurme, Kurtina, Kuremyae, and Tammiku.

The republic's scientific institutions and water resources agencies are now engaged in a study of the possibility of separating biogenic compounds (phosphorus, nitrogen) from the treated drainage waters in order to prevent the water basins from becoming overgrown with vegetation.

The measures being undertaken to protect the waters of the northeast of Estonia are in full accord with the articles in the International Convention on the Protection of the Waters of the Baltic Sea. The time will come and we will return clean waters to nature and to people; it is only necessary for us to unite our efforts.

DATA BANK FOR ANALYSIS OF BALTIC SEA POLLUTANTS

Moscow MOSCOW NEWS in English No 45, 14-21 Nov 82 p 8

[Article by Pavel Antonov]

[Text] "No, don't make me speak about the death of the sea. Not a single sea on earth is dying at present, even though the only thing I've been doing for quite a few years now is warning people about the danger looming large over mankind's main life source, i.e., over water." These words belong to Jacques-Yves Cousteau, pioneer of underwater exploration.

"Cousteau is right, of course," said Gunars Andrusaitis, Director of the Latvian Institute of Biology. "No sea is as yet agonizing but many do display symptoms of illness. We are, naturally, most of all concerned with the problems facing our own Baltic."

Many specialists are of the opinion that the decrease in the population of sprats in the Baltic Sea is a result not so much of uncontrolled sprat fishing, as of the increased content of heavy metals in seawater.

"A special programme, 'Baltika,' has been commissioned in the USSR," Gunars Andrusaitis went on. "Its task is to reveal as a package all the hydrological, biological, chemical and other problems, and start studying them."

The task now is to set up a bank of data on the Baltic Sea. The Latvian Institute's contribution is the accumulation of biological data on coastal waters. Specialists at the State Hydrology Institute in Leningrad are gleaning information on hydrochemistry. The Baltic Sea Laboratory set up in Tallinn does research on the problem of dumping harmful substances into the sea.

When will the model of the Baltic Sea be built? The hydrologists and hydrochemists will be able to complete their assignment by the mid-80's. The biologists will need more time. They have to deal with too many variable and unstable factors. In spite of the popular belief that computers can do anything, even the latest of them have their job cut out when dealing with "live" problems.

The Baltic Convention was signed and ratified in 1976. The signatories include seven countries: Poland, the GDR, the FRG, Denmark, Sweden, Finland, and the USSR. A Union of Baltic Biologists has been set up within its framework and it has already worked out the general principles of cooperation.

"Naturally, not all of our proposals are complied with immediately, for protection of nature is a slowly evolving process. Still, many recommendations have already been fulfilled. For example, our institute's staff made a thorough study of the state of small rivers in Latvia. Now no project can be built in the littoral zone without our permission."

Concern for the conservation of traditional landscapes is also displayed in Latvia. The Republic is small in size but very varied. Land improvers had often tended to level the terrain out. This will be done no more. It is impermissible to use the same yardstick even in localities of a single district. Now land improvement schemes are developed separately for each collective farm so as to preserve its own landscape as it is.

CSO: 5000/46

AUTO TRANSPORT AND AIR POLLUTION CONTROL IN MOSCOW

Moscow AVTOMOBIL'NIY TRANSPORT in Russian No 9, Sep 82 pp 55-56

[Article by Candidate of Technical Sciences I. Lantsberg: "For Cleanliness of the Air Basin"]

[Text] Motor transport has now become one of the chief atmospheric pollutants in cities. A significant part of the noxious discharges (carbon monoxide up to 75 percent, carbon dioxide up to 35 percent and nitric oxide of approximately 30 percent) is attributed to transport.

The Second Moscow Urban Scientific and Practical Conference was devoted to problems of improvement and increasing the effectiveness of environmental work. The problems of reducing the harmful effects of transport on the environment were considered here.

Representatives of the leading scientific research institutes, planning organizations and production enterprises participated in this work.

Doctor of Technical Sciences V. N. Ivanov (NIIAT [State Scientific Research Institute of Motor Transport]) noted in his report that the cleanliness of the city air basin can be preserved provided that a specific complex program, which can be represented by five levels, is developed and implemented. These are improvement of freight and passenger shipments, development of an optimum transport system, improvement of the technical and operating qualities of rolling stock, improvement of the design parameters of the engine and neutralization of exhaust gases outside the engine cylinder and introduction of progressive methods and means of monitoring the technical state of transport equipment.

The chief of UGAI GUVI [not further identified], Mosgorispolkom A. P. Nozdryakov talked about the course of construction of the Start teleautomatic transport control system in Moscow, which permits a 15 percent increase of the carrying capacity of major thoroughfares. He turned attention to the unfavorable status of toxicity not only of those motor vehicles which are already in operation, but of new ones as well. A check showed that only 50 percent of new motor vehicles meets the required toxicity standards. Gosavtoinspektsiya [State Automobile Inspection] intensified inspection of the technical state of transport, its external appearance and the working order of assemblies and units that directly affect the toxicity of exhaust gases and the noise level.

The departmental motor vehicle facilities should increase the level of maintenance and repair of rolling stock. Removal of freight facilities that have no relation to the vitality of the city from its central part will also contribute to a reduction of the harmful effect of motor transport. The chief of the administration of design and experimental work, USSR Minavtoprom [Ministry of the Automotive Industry], A. I. Titkov feels this way.

One of the directions of work to reduce discharges of toxic substances is to convert the motor fleet to diesel engines. Compared to gasoline engines, diesel engines discharge one-tenth as much carbon monoxide, one-half as much carbon dioxides and 10-15 percent fewer nitric oxides into the atmosphere. An important measure which will contribute to reduction of atmospheric pollution by noxious discharges is systematic inspection and regulation of vehicles for toxicity. At the same time, there are still not enough gas analyzers and exhaust meters at motor vehicle facilities, at motor vehicle plants and at GAI.

The workers of NAMI [Central Scientific Research Institute of Motor Vehicles and Automobile Engines], USSR Minavtoprom, talked about the standards that establish the maximum permissible discharges of carbon monoxide, carbon dioxide and nitric oxide, as well as soot discharges for diesel engines. The standards established in OST 37.001.054-74 were made more rigid on 1 October 1982 with respect to 10 percent less carbon monoxide, 24 percent less carbon dioxides and 19 percent less nitric oxide. The restriction on the toxicity of discharges from trucks in the USSR is being introduced for the first time among European countries. The order of analyzing the toxicity and maximum permissible standards have been established by GOST 17.2.2.03-77. The standard is applicable to compact automobiles, trucks and buses with gasoline engines and provides for a check at motor vehicle plants and at enterprises that operate motor vehicles. OST 37.001.234-81 "Motor vehicle diesels. Discharges of noxious substances. Standards and methods of determination" was introduced on 1 January 1982.

The total calculated discharge of noxious substances by introduction of maximum standards for motor vehicles should be reduced by 15 percent by the end of the 5-year plan compared to 1980. Introduction of more rigid standard on discharge of toxic substances with the exhaust gases from motor vehicles requires improvement in the design of gasoline engines, specifically, improvement of the fuel and ignition systems. For this purpose, NAMI jointly with the AvtoVAZ Association developed the KASKAD device, introduced in new VAZ [Volga Automotive Plant] internal combustion vehicles and that guarantees a reduction of the carbon monoxide and carbon dioxide content in exhaust gases by 20-40 percent.

The chief of Glavmosavtotrans [Main Administration of Motor Transport, Mosgorispolkom] I. M. Goberman noted in his report that conservation of fuel and energy resources contributes to improving the quality of the city air basin. Improving the structure of the motor fleet of Glavmosavtotrans will guarantee a reduction of the need for gasoline by 70,000 tons, while improvement of the shipping processes and efficient disposition of motor transport enterprises will yield a fuel saving of approximately 6,000 tons annually. Moreover, the reporter noted that the use of new types of fuel and energy resources will also reduce the atmospheric pollution of the basin. The use of motor fuels

with alcohol and ester additives merits the closest attention. One of the most effective transport units that do not emit toxic components into the atmosphere and that totally eliminates the use of petroleum-based fuel is the electric vehicle. Operation of 400 electric vehicles in intracity shipments is planned at Glavmosavtotrans by the end of the 11th 5-Year Plan. It is planned to increase the fleet of propane-powered vehicles to 13,400 and also to increase the motor fleet with diesel engines by 33 percent.

Colleagues of NIIAT presented some interesting communications on the economic characteristics and promising types of fuel. Investigations showed that all types of new fuel (gasoline-methanol mixture, gasohol, methanol, ethanol, natural gas and hydrogen) will permit a reduction of the specific discharges of carbon monoxide and nitric oxide. Hydrogen is the most ecologically acceptable. The use of methanol and natural gas reduces discharges of noxious components by an average of 30-50 percent. The effect is observed to a lesser extent in mixed fuels with motor-life additives, due to which CO and NO_x discharges can be reduced by only 5-15 percent.

Investigations are now under way to construct a model of the discharge and scattering of exhaust gases on major motor vehicle thoroughfares with regard to the specific characteristics of traffic and regulation of transport flows and meteorological conditions. Solutions have already been found for specific traffic situations: the concentration of carbon monoxide near controlled intersections with different traffic intensity has been calculated and a method of optimizing the regulation of transport flows at intersections has been developed with regard to the time lost on waiting. Analyses of the exhaust gas concentration on the street at intersections have been obtained to determine their effect on drivers, the traffic controllers and pedestrians. Senior instructor of MADI [Moscow Highway Institute] Malkis and Senior Scientific Associate V. Ye. Rokotyan reported on these investigations.

The deputy chief of Mosavtolegtrans [not further identified] A. K. Krylov talked about the practical work of Mosavtolegtrans to reduce the harmful effects of motor transport on the environment. He reported that complex stations for checking the toxicity of exhaust gases, outfitted with special diagnostic equipment: engine testers for checking the fuel and ignition systems, infrared units, Infralit-T (East Germany), Mexa-201 (Japan) and Beckman (West Germany) gas analyzers and so on, have been created at all enterprises. Improvement of environmental quality also depends on the proper handling of the motor vehicle and the level of the ecological knowledge of the driver staff. Mosavtolegtrans is conducting no less important work to reduce pollution of water resources. The enterprises of Mosavtolegtrans have widely introduced the Kristall unit, having considerably improved the operating conditions and implemented tens of innovator suggestions to improve primary and secondary filter purification. The problem of water conservation is now being solved, having guaranteed circulation of it in the Kristall unit.

Many important problems were discussed at the conference on environmental protection in which prominent scientists, designers, technicians and managers of various sectors of the national economy and responsible workers of the Moscow City Committee, CPSU, and of the ispolkom of the Moscow City Soviet participated.

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6521

CSO: 5000/33

PROBLEM OF AUTO EXHAUST IN TURKMEN SSR

Ashkhabad TURKMENSKAYA ISKRA in Russian 1 Dec 82 p 2

[Article by K. Muradov in the column "Problems and Opinions": "The Automobile and the Atmosphere"]

[Text] Now automobile transportation has become one of the most important polluters of the atmosphere. With the growth of our numbers of automobiles and trucks, the problem of protecting the atmosphere has acquired special urgency.

Much has been done in our republic to reduce the amount of harmful substances from the exhaust of motor vehicles. The transfer of automobiles to liquified gas has begun. Starting in 1983, and going on until the end of the Five-Year Plan, about 150 automobiles are designated for the transfer to blue fuel. For the long term, the transition of vehicles to electropulsion is planned.

But this is, so to speak, a future phenomenon. But today it is necessary to lower to a minimum, by every possible effort, the spread of harmful substances in exhaust from gasoline and Diesel-fueled vehicles.

The analyzers "Infralit T" and "GAI 1" are used to test exhaust gases for toxicity. In Ashkhabad, these instruments are found only in the No. 1 and 2 taxi and automobile enterprises, the motor vehicle enterprises No. 3004 and the auto repair plant No. 1. In Ashkhabad, there are also fuel analyzers at the motor vehicle production combine and municipal motor vehicle enterprises No. 10, but they are not in working condition. There has been as yet no solution to the repair and performance-testing problem with fuel analyzers in our republic. TuSSR Gos-snab spends very little, for which reason testing stations for the toxicity of exhaust fumes are not found in many of the TuSSR Ministry of Motor Transport's enterprises.

The workers of the state auto inspection bureau have been given the responsibility for the quality of air in cities and settlements. For this they use the "GAI 1" and "GAI 2" gas analyzers. State auto inspection (GAI) workers check exhaust-gas

toxicity levels when the technical condition of autos is tested before they are driven from the garage for special trips, at GAI's stationary posts and when a state inspection of motor-vehicle functioning is carried out. In six months, GAI employees withdrew 2085 motor vehicles, motorcycles, motor scooters and other vehicles from the roads. The total number of persons who were fined, including production-line employees responsible for auto exhaust, was 635.

One of the important resources in protecting the atmosphere of the settled areas from exhaust-gas pollution is improvement of the traffic situation, especially separation of through traffic from heavily settled areas. This is the reason that bypass roads are being constructed around Mary, Chardzou, and Tashauz. The highways of this type are completed in the Ashkhabad, Bayram-Ali, Kalinin, Il'yaly, Khalach, Charshanga and Bakharden regions.

The "green wave", a system to provide a run of green lights, to control traffic by means of a telemechanical system will have a great effect on cleansing the atmosphere of Ashkhabad when it is introduced. In time such systems will be introduced in all oblast centers and in Nebit-Dag. This will make possible a sharp drop in fuel waste through reducing the number of times a motorist must stop at intersections, awaiting a green light, and will also cut down on noise and emission in exhaust gases of excess carbon monoxide.

One source of assistance in protecting atmospheric air is represented by the informational bulletins of the TuSSR Scientific-Research Institute of Scientific and Technical Information of the republic Gosplan concerning the scientific and technological achievements of specialists from other republics and from abroad in this area. One such technological innovation is a monitoring instrument, proposed by the Riga construction and planning office of motor vehicle diagnostics, which checks the neutralization system for waste gases and is mounted directly on the vehicles.

Another example is the use in Leningrad's auto repair shops of an ultramodern diagnostic station for testing the carbon-monoxide content of exhaust gases. Such a station makes possible regular monitoring at this tremendous city's auto repair shops. The Minsk monitoring point for waste gas toxicity should certainly interest transportation specialists. It facilitates the monitoring of the carbon monoxide content of waste gases from all types of carburation engines, measuring of crankshaft frequency and checking the dwell angle. The adoption of these innovations at our republic's auto repair shops has made possible much cleaner air over our cities and settlements.

The problem of protecting atmospheric air has now become urgent. And for this reason, it is time to make the managers of auto repair stations, with their

authority over a great share of motor transportation, as well as drivers of motor vehicles, keenly aware that this problem must be solved as mandated by the law "Protection of Atmospheric Air."

9582

CSO: 5000/41

HESSE ENVIRONMENT MINISTER DRAFTS ACID RAIN LAW

Frankfurt/Main FRANKFURTER RUNDSCHAU in German 28 Dec 82 p 1

[Text] The Hessian minister for the environment, Karl Schneider, wants to do his part in combating that destroyer of nature, "acid rain," with a "sulphur tax law." The draft for just such a law is already on the ministry's desks. This law will force the electric companies (EVU's) to generously equip their coal-burning power plants with purification facilities. A tax of 2,000 marks is envisioned for each ton of sulphur-dioxide (SO₂) released into the atmosphere above a determined level. If the EVU's do not comply with such a law, then, according to the amounts of SO₂ being presently released, they will be required to pay yearly approximately 2.4 billion marks.

The reasoning behind such a law sees it as a "steering tool" which will force the national electricity producers to quickly take the necessary steps towards purification. The time factor seems to be decisive for the fathers of this law. Even if one starts with the premise that the new government in Bonn carries through with the envisioned supplementary law for "technically controlled air (TA-Luft) and enacts an ordinance for large fuel-burning furnaces, and everything indicates just that, it will take until the early 1990's before a noticeable reduction of SO₂ in the atmosphere will be felt. This could have irreparable effects for the environment and economy.

The following was written in a ministry memorandum concerning the draft law: "When one considers the power plant capacities of the nation (around 40 percent above actual needs) and the stagnating demand for electricity, then one can forecast that the ordinance for large fuel-burning furnaces will first cause the EVU's to use the oldest plants with the highest air pollution ratios (4,000 to 8,000 mg) at full capacity.... The building and use of plants, beneficial to the environment, will thus bring about a noticeable reduction of SO₂ emissions no earlier than the 1990's, when, in the worst case, the plant operators, expecting super-increased growth rates in power, push forward with extensive, but unnecessary renovations (the costs of which will be passed on to the consumer), or: will not do anything at all in order to then extort the construction of nuclear power plants or the unchanged operation of the older facilities, (which, according to prior plans, were to be allegedly shut down), by threatening 'power outages.'"

On the other hand, the people in Wiesbaden's environmental ministry expect a lot from their "sulphur tax law." "The plant operators will fully utilize

their existing and environmentally most beneficial facilities; older furnaces, harmful to the environment because of their emissions, would be used only in extreme situations to cover peak needs. This would result in a noticeable reduction in the SO₂ level because of the existing extra capacities."

The draft law, which will possibly be introduced as a Bundesrat bill in SPD ruled provinces, is supposed to become law by 1 January 1985. Affected would be those plants with a thermal output greater than 50 megawatts. If liquid or solid fuel with a sulphur content up to 1.2 percent were burned, then the limit where a fine would be levied would be at 300 milligrams per cubic meter of exhaust gas. Such a limit for a 2,100 megawatt power plant in a medium resistance working plant (5,000 hours yearly) would reduce the SO₂ emission from an annual 26,450 tons to 4,400 tons. State-of-the-art technology makes it possible to purify this emission level today.

The draft law envisions that the EVU's do not pass the costs of the taxes on to the consumer; rather, that the taxes be purposefully utilized for the research into better purification and burning technologies.

The determination of the tax should be the responsibility of the federal office for industrial economy, which already manages the "coal penny." The draft law further envisions non-recognition of any postponing move for legal redress against the determination of the tax in order to prevent a further evasion in reducing emissions through protracted administrative court proceedings.

12242

CSO: 5000/2538

BRIEFS

ACID RAIN CONTROVERSY--The debate concerning the cause of dying forests is expanding. Recently, numerous politicians and scientists have been expressing their opinions on the subject throughout the parties. The North Rhine-Westphalian Minister of Agriculture, Hans Otto Baeumer, has emphasized: "everything must be done to prevent public confusion." The results of the most recent studies by the Provincial Air Protection Agency (LIS) in Essen will have to be "carefully evaluated." The director of the LIS, Professor Heinrich Stratmann, together with labor minister Friedhelm Farthmann, has presented his institute's study. The researchers from Essen concluded that "acid rain," (rain mixed with sulphur-dioxide), was not responsible for the dying forests, but that the noxious element, ozone, was. Other scientists, like Hamburg's wood-biologist, Professor Josef Bauch, believe in comparison that the cause of the dying forests is damage to the fine tree roots by acidification. Agriculture minister Baeumer stated that he considered his thesis confirmed: there are no "either-ors" harming the forests. Rather, the principle of "as-well-as" must be the driving factor. In any event, none can say that the problem of acidic soils, "so to say, will not be brought up tomorrow." The North Rhine-Westphalian chairman of the FDP, Dr Burkard Heisch, criticized the controversial debate about the dying forests as "adventurous." The SPD Bundestag deputy, Freimut Duve, who belongs to his party's environmental working group, stated that the enjoined battle of the experts must not lead to a paralysis of the therapeutics for the dying forests. This could only hurt the urgent rescue from the threatening gigantic environmental catastrophe if the finds of research into the causes were abridged or unilaterally used. [Text] [Duesseldorf HANDELSBLATT in German 27 Dec 82 p 4] 12242

CSO: 5000/2538

MINISTRY WANTS FURTHER STUDY ON LEADED GASOLINE EFFECTS

Helsinki HELSINGIN SANOMAT in Finnish 12 Jan 83 p 7

[Article: "Finance Ministry: Additional Study on Leaded Gasoline"]

[Text] The Finance Ministry wants a report on the environmental and health effects of the reduction of lead content in gasoline. In the opinion of the ministry there must be essential environmental and health reasons for this reduction since the production of gasoline with a low lead content presupposes considerable investments.

According to preliminary estimates the production of gasoline with a low lead content alone would mean an additional investment of 150--200 million markkas for the Neste Corporation and the operational expenditures of the production of this gasoline would be approximately 10 pennies per liter.

Such considerable expenditures thus imply serious reasons in the opinion of the ministry. In the ministry's statement sufficient reasons can be found in the fact that the other Nordic countries and several European countries have adopted or are adopting similar restrictions on lead content. Presently, gasoline has 0.4 grams of lead per liter. Beginning in 1986 the lead content would be reduced to 0.15 grams per liter.

The issue will be discussed in the government's ministerial economic policy committee next Tuesday when the report of the Social and Health Ministry on the health effects of this reform becomes available.

An increase in Neste's shares or tax reserves has been presented as funding alternatives for this project.

10576

CSO: 5000/2537

HAZARDOUS WASTE FIRM AIDING COMPANIES WITH TECHNICAL ADVICE

Helsinki HELSINGIN SANOMAT in Finnish 12 Jan 83 p 9

[Article: "Waste Treatment Firm Already Aiding Firms With Waste Problems"]

[Text] The hazardous waste plant being constructed in Riihimäki will not be completed until the summer of 1984, but Suomen Ongelmajäte Oy [Finnish Hazardous Waste Company] is already now attempting to help companies with their waste treatment problems. The company is offering advice in the storage and preliminary treatment of hazardous waste as well as shipping waste to plants in foreign countries.

This was the promise made by Graduate Engineer Matti Vattulainen, who spoke on the present stage of the waste treatment question in our country at a meeting of the Pressoil Club on Tuesday in Helsinki. According to Vattulainen the Finnish Hazardous Waste Company is presently increasing its personnel in order to deal with these tasks.

According to Vattulainen companies are now in a difficult situation since waste treatment legislation is in effect with all its obligations and restrictions, but collection points for hazardous waste and a plant capable of destroying such waste are lacking. The supervision of officials is already so strict that there is really no need to fear that hazardous will be buried in dumps as before. At its worst the situation has, however, resulted in the well-known Dragsfjärd incident.

The Finnish Hazardous Waste Company can accept waste for treatment in plants in foreign countries or it can find foreign contacts and provide information on them to the companies themselves, stated Vattulainen.

The company's responsibilities also include the storage of hazardous wastes until the plant is completed. However, it is necessary for officials to approve a storage facility or facilities for this purpose as well as to establish rules governing such storage, stated Vattulainen.

At the hazardous waste treatment plant being built in Riihimäki earth moving work has been completed and underground pipes have been installed. Construction has begun on the office building and the equipment for the various processes has been purchased. Construction of the actual plant will begin in March.

LICENSING FOR FIRST HAZARDOUS WASTE TREATMENT PLANT

Helsinki HELSINGIN SANOMAT in Finnish 18 Jan 83 p 10

[Article: "License Issued to Hazardous Waste Treatment Plant"]

[Text] Riihimäki--The Häme Provincial Government has issued a license for the first nationwide hazardous waste treatment plant, which is presently under construction, and has established emission limits for the plant which were copied from licensing conditions for a corresponding plant under construction in Sweden.

The permit issued by the provincial government is not yet final. More precise conditions will be established on the basis of experimental operations and safety determinations. The provincial government believes that certain emissions can be dropped to one-third of the established maximum permissible amounts.

Suomen Ongelmajäte Oy [Finnish Hazardous Waste Company], which will make toxic or otherwise difficult to dispose of wastes harmless, ordered the primary equipment for its plant months before the provincial government defined the qualifications required of this equipment.

Chief Inspector Pirjo Mäkinen of the provincial government believes that the equipment will correspond to those demands established after the fact.

The hazardous waste treatment license includes several conditions regarding the disposal of water, noise, and emissions into the atmosphere, among other things. The waste treatment company will also have to make and present a basic environmental study,

The basic environmental study must be completed by the fall of 1984 or soon after the experimental operations, which will last 6 months. The study dealing with plants, animals, air, food products, and fodder will cost more than a million markkas.

The consultant with primary responsibility for the study will be the State Technical Research Center. In addition, the provincial government assumes there will be a study dealing with people.

Technical Director Matti Vattulainen of the waste treatment company considers the conditions to be difficult particularly with respect to the basic study. "The basic study is unnecessarily broad. It would have been possible to get by with less information."

The conditions for the license also deal with the level of the plant's laboratory. It is stated in the conditions that the laboratory must be equipped with the proper equipment and it must employ sufficiently trained personnel.

The waste treatment company has previously announced that it can manage with five chemists. Professor Pekka Nuorteva, for his part, has confirmed that at least 30 or perhaps even 50 chemists are needed.

The ground underneath the plant is considered to be the most difficult issue from the point of view of safety at the waste treatment plant. Residents in the immediate vicinity of the plant, in particular, suspect that it will not be possible to control bottom and surface waters since water can penetrate the soil.

Tampere Technical College has told the provincial government that inasmuch as the precautions included in the construction plans are accomplished, the plant can be built safely.

Governor Risto Tainio, for his part, gives the assurance that the license application has been handled with unusual attention and care in the provincial government and that officials have procured all the knowledge that is available in Nordic countries about the treatment of hazardous wastes.

Earth moving work and construction on the office facilities of the waste treatment plant are being presently accomplished in Riihimäki. The construction permit for the actual waste treatment plant will be issued in the near future. Assistant City Director Ensi R. Louhivuoto states that the building permit is now easy to issue since "the provincial government has done such precise work".

The hazardous waste treatment plant, which will cost approximately 300 million markkas, will be completed in Riihimäki by the end of 1984.

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SPAIN

MADRID AIR POLLUTION SERIOUS BUT NOT 'ALARMING'

Madrid: EL PAIS in Spanish 30 Jan 83 p 23

[Text] "The pollution levels in the capital are high, but not alarming. In recent days the criterion for good air quality was not met, but neither did it reach the first stage of the emergency category," said Lucio Pita, director of the Office of Environment and Sanitation.

According to Pita, the meteorological situation, from the point of view of pollution, is the worst it has been in recent years, even though recently adopted inspection methods have succeeded in greatly reducing the sources of pollution. Steps must be taken when the following official levels are reached: 400 micrograms of sulphur trioxide (SO₂) and 300 micrograms of particles per cubic meter of air; but municipal authorities are applying a more exacting limit by setting the standard for good quality at 250 and 150 micrograms, respectively. These are the very levels that were recently exceeded. On 24 January, 273 and 159 micrograms of concentration were recorded; on 25 January, the SO₂ (essentially influenced by heat) decreased to 244, but the level of particles in the air increased to 180; on 26 January, the levels again increased to 271 and 174 respectively, and on Thursday there were 258 micrograms of SO₂ per cubic meter and 165 micrograms of particles. Finally, on Friday there were 228 micrograms of sulphur trioxide, which does not exceed the limit set by the municipal authorities, and 154 micrograms of particles in the air, which does exceed the standard. The areas that have been most affected are the low areas of the capital, especially Recoletos Avenue, at the Carlos V intersection, at the Quevedo intersection, at the Puerta del Sol, and Doctor Maranon Square.

Less Pollution During the Weekend

Jesus Espelosin, municipal environmental commissioner, yesterday said that on Friday there were high levels of pollution, caused by particles in the air (from automobile fumes) because the end of the month and the beginning of the weekend coincided. According to Espelosin, more automobile drivers drive their cars on Fridays and more cars are used at the end of the month, too, because

that is when salaries are received, or about to be received.

The municipal commissioner thought it likely that pollution levels will decrease during the weekend and that they will decrease afterward if, according to the weather forecast, the anticyclone moves away. He also specified that, no measures will be taken now, while awaiting the recording of next week's levels.

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AUTOMOTIVE INDUSTRY WORRIED OVER REPORT ON EFFECTS OF LEAD

Report Details Car Exhaust Danger

Stockholm SVENSKA DAGBLADET in Swedish 20 Jan 83 p 13

[Article by Henrik Ekman: "Exhaust Gas Report: Less Lead"]

[Text] Exhaust gases from vehicles is the major environmental problem in Stockholm. The established levels are exceeded on several streets in the inner city. The exception is the discharge of lead, which has decreased after the reduction of the lead content in gasoline.

This is the conclusion which can be drawn from the report of the Environment and Health Administration on the 1981 traffic pollution studies.

The majority of the transgressions of the target levels set by the municipality for various substances is for carbon dioxide.

For that, 10 milligrams per cubic meter of air is the maximum average value for an 8-hour period. This was exceeded at six different places of measurement: Horns Street, Norrlands Street, Radmans Street, Slussen, St. Eriks Street and Svea Road.

Birger Jarls Street, Hamn Street, Langholms Street and North Malar Beach were very close to the limit.

These streets have in common that lines usually form there. The situation is worst on Norrlands Street. There, the acceptable value for carbon dioxide is exceeded practically daily.

Increasing attention is being paid to nitric oxides. Excessive levels were measured at Birger Jarls Street, Horns Street, Norrlands Street, Svea Road and the bus terminal at Slussen. Diesel-fueled buses discharge a great deal of nitric oxides.

On the other hand, the levels of dust-borne lead in the air has decreased by half compared to 1979, that is to say before the lead content in gasoline was reduced. The only place where the acceptable level for lead is being

exceeded is Horns Street. Other than that, the streets are below the levels by a wide margin.

Car Industry Criticizes Conclusions

Stockholm DAGENS NYHETER in Swedish 3 Feb 83 p 5

[Article by Bengt Lindstrom and Ingemar Lofgren: "'Car Industry Holding Back;' Pollution Controls Being Delayed"]

[Text] The car industry is holding back the introduction of stricter regulations for exhaust gases.

This is what both the Environmental Protection Agency and the Automobile Exhaust Committee say to DAGENS NYHETER. Year after year new alarming reports have shown how exhaust gases affect people and environment. Each time the politicians said that something must be done. But things move slowly.

"The exhaust gas hazards are exaggerated in Sweden," says Jonas Gawell, managing director of the Swedish Automobile Industry and Automobile Wholesale Association.

"People refer to the exhaust gases when they do not feel well. But it is not at all certain that the ailments are due to the exhaust gases. The whole matter might be a question of attitude, that one feels irritation in the densely populated areas. It is uncertain just how much the situation would improve if the exhaust regulations were changed."

Gawell speaks on behalf of the Swedish automobile industry, an industry which in the opinion of many has succeeded in delaying radical measures against the destruction of the environment over many years by the exhaust gases.

"We do not need to be in such a hurry. The situation is not at all as alarming as the reports let on. We must not be too hasty but work out a sensible solution, which is in harmony with the rest of Europe," Jonas Gawell says.

'Delaying'

Officials at the Environmental Protection Agency do not agree with Gawell.

"The car industry is just trying to delay the decision," says Karl-Elis Bostrom, the Environmental Protection Agency's expert on exhaust gases.

"We must make rapid decisions. A decision today does not take effect until 1987. If we delay any longer we will not be able to do anything until far into the 1990's." Karl-Elis Bostrom says.

The present Swedish exhaust regulations took effect in 1976 and were the equivalent of the 1973 exhaust requirements in the United States.

They soon turned out not to be sufficient in practice, and meanwhile regulations in the United States were further tightened. The Environmental Protection Agency therefore decided in 1981 that the Swedish regulations should also be tightened. The Environmental Protection Agency has run into heavy opposition from the Swedish auto industry, Volvo and Saab, as well as from the EC nations.

More Expensive Cars

"We must not create our own norms. This puts us in a bad light as trade partners. In addition, Swedish cars become more expensive and we cannot cope with that in today's competitive situation," Jonas Gawell says.

In 1977 the government appointed the so-called automobile exhaust gas committee. Its task was to study how people and environment are affected by the automobile exhaust gases.

The committee has worked for 6 years. During that time about 20 studies and reports have been received, the latest one last Monday, which has now cost the Swedish people 10 million Kronor. Fees and expense allowances for specialists, experts and members are not included.

In May the committee is expected to submit a memorandum, which includes:

- a) Measurements and estimates of exhaust gas levels in an urban environment.
- b) Health hazards and other effects.
- c) Proposals for acceptable air quality values.
- d) Proposals for various measures, such as for example traffic reorganization, pollution control on cars and unleaded gasoline.

Sluggish Procedure

The memorandum will then be circulated for comment, which is a very time-consuming procedure.

Why does it go so slowly? Is it not known, after all the alarming reports, that automobile exhaust gases are hazardous to both people and environment?

"I am not sure that everyone knows that," replies Bo Assarsson, secretary of the government automobile exhaust committee. "The car industry perhaps does not completely agree that it is all that dangerous. Their trade-political and industry-political arguments are contrary to the environmental-political arguments."

Is it the car industry which is holding back the introduction of rapid and tough regulations?

"If the car industry wanted to introduce the regulations voluntarily, there would of course be no problems whatsoever. But it is a strong group, which cannot be treated in an arbitrary way."

"Therefore, we must handle this in an acceptable manner. And what is acceptable is a question for the government," Bo Assarsson says.

Dilemma

When they were in opposition the Social Democrats demanded far-reaching measures against automobile exhausts. Today, they are in power and have difficulty deciding exactly what position to take on the ticklish balance between trade policy and environment.

"This is a dilemma. I cannot answer that question," says State Secretary Arne Kardell at the Ministry of Agriculture.

Just as the Swedish car industry, Kardell maintains that Sweden, which is so dependent on the rest of the world, cannot unilaterally decide on tougher exhaust controls. The Swedish exhausts would thus not be a question for the Swedish government alone.

"No, we are obliged to negotiate with the EC, among others," Arne Kardell replies and adds:

"If one wants to introduce tougher regulations, one must know what one is talking about and that the auto manufacturers are really able to cope with it."

Unleaded Gasoline

A so-called catalytic converter in combination with unleaded gasoline removes between 70 and 80 percent of the exhaust gases. According to the Environmental Protection Agency such a converter means an investment of about 3,000 kronor per car. Maintenance costs about 70 kronor per car and year. Unleaded gasoline costs about 6 one more per liter, but the cost is compensated for by the fact that fuel consumption decreases by four to eight percent. This type of pollution control is already in place on Swedish cars exported to the United States.

"In its propaganda the car industry says that a unilateral Swedish decision about a catalytic converter would mean that no Swedes could travel by car in Europe, since there is no unleaded gasoline. I do not think that tourism is so important that this argument should prevent us from saving the environment," Karl-Elis Bostrom at the Environmental Protection Agency says.

TURKEY

TURN TO COAL DISCOURAGED FOR ENVIRONMENTAL REASONS

Istanbul CUMHURIYET in Turkish 2 Jan 83 p 8

[Article on report of Under Secretariat for Environment; "A Return to Coal Must Not Be Encouraged"]

[Text] According to a report preventive measures will achieve only a 50 percent control of air pollution in Ankara. One proposal among others asks for a decree banning the use of coal in central heating installations for new buildings.

ANKARA (Cumhuriyet Bureau)--In the program for the control of air pollution in Ankara it is reported that "the combination of pollutants can be cut down by about 50 percent yearly with the implementation of the mandatory measures."

In the report prepared by the Prime Ministerial Under Secretariat for Environment and titled "Status Report on the Ankara Air Pollution Reduction Program for Winter 1982-83" the following is said:

"Even if air pollutants were cut down by about 50 percent yearly, this does not mean the air in Ankara will be completely cleaned and, with the onset of recurrent very adverse weather conditions, it is likely that Ankara will suffer bad days again as regards pollution."

The report states, furthermore, that the Supreme Coordinating Council for Economic Affairs has determined the amount of solid and liquid fuels which will be consumed during this winter in Ankara. According to this information: 175,000 tons of coke briquettes and 680,000 tons, including an additional 450,000 tons, of Tuncbilek lignite as solid fuel; and 250,000 tons of special low-viscosity, low-sulphur heating fuel for liquid fuel will be used during the winter of 1982-1983 in Ankara. In the program which is being elaborated by the Under Secretariat for Environment it is pointed out that even the slightest deviation will endanger success and that "there is a possibility of achieving coke sales targets, but central heating systems converting to coal from liquid fuel are endangering a sensitive balance with the additional lignite burden."

In the proposals section of the report the following views are included:

"In order to give added weight to the efforts toward a wider use of coke and to check a return to coal in centrally heated apartment buildings, a highly influential voice must proclaim the continuation of the coke allocation program while the installation of coal fueled central heating in new buildings must be prevented by decree.

If projected based on coal, the immediate revision, based on liquid fuel, of the total contract bid of 68 million TL--which includes the Prime Ministry building--about to be awarded by the Ministry of Public Works; a SPO investment of 354 million TL.

In the course of the new fuel price readjustments it is advisable to review once again the coal-liquid fuel price ratio so as not to encourage overmuch a return to coal.

During the winter months, in order to ease somewhat the strain expected in Ankara on the Tuncbilek washed coal supply, the necessary high-level interest must be shown to off set unnecessary washed coal allocations to military barracks among others, by screened coal.

In centrally heated apartment buildings using solid fuel, the burning of pit-coal which does not lend itself to the coke process must be immediately enforced and implemented this year. At the very least, public buildings must be made to burn pit-coal as far as possible.

In Ankara, combustion controls must be intensified on a "chimney to chimney" basis. Therefore, equipment, personnel and coordination deficiencies must be remedied.

In public buildings (including military buildings) routine maintenance and regulating of boiler systems, proper checking burners and, in case of malfunctions, penalizing those in charge are important points that require attention.

Insulation of buildings and steps towards conserving energy should be given serious consideration.

An immediate study must be made of credit and tax measures.

The Ministry of Justice should give urgent attention to the proposed change in Article 20 of the Suite Ownership Law.

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